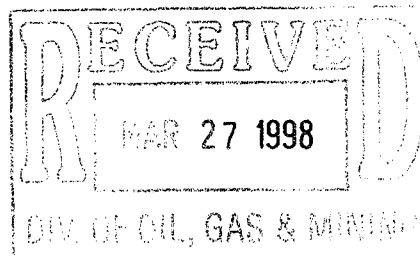


MILLER ENERGY, INC.

March 26, 1998

Mike Hebertson
Utah Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801



RE: Miller Energy, Inc.
Horse Canyon Federal 1-3 & 1-4 proposed locations
San Juan Co., Utah

(See lease map)
Horse Cyn. 1-3 File*

Dear Mike,

Enclosed is a lease map and survey plats for the two locations referenced above. As always, we are in a rush to gain approval on these.

Miller Energy et al, has a farmout letter agreement from Flying J Oil & Gas on the proposed 1-4 location, whereby we would earn the drillsite spacing unit only, with a 180-day option to drill additional wells on their lease. A formal agreement is currently being drafted. As you can see from the map, there is common ownership offsetting the 1-3 location for lease UTU76283.

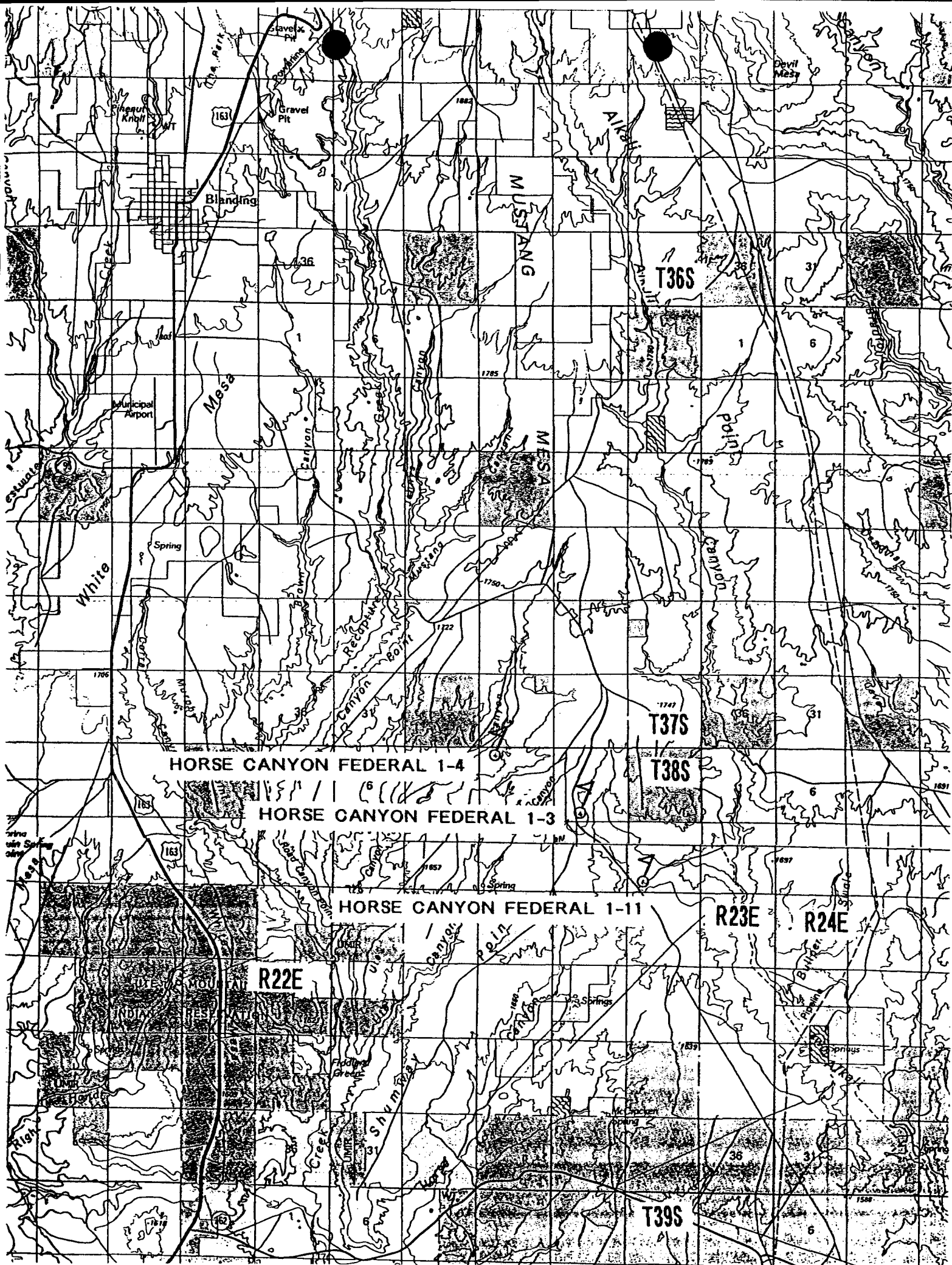
An exception to the location and siting for both of these wells is requested. 3D seismic is being utilized to locate the optimum position to drill and thus has dictated each of these locations.

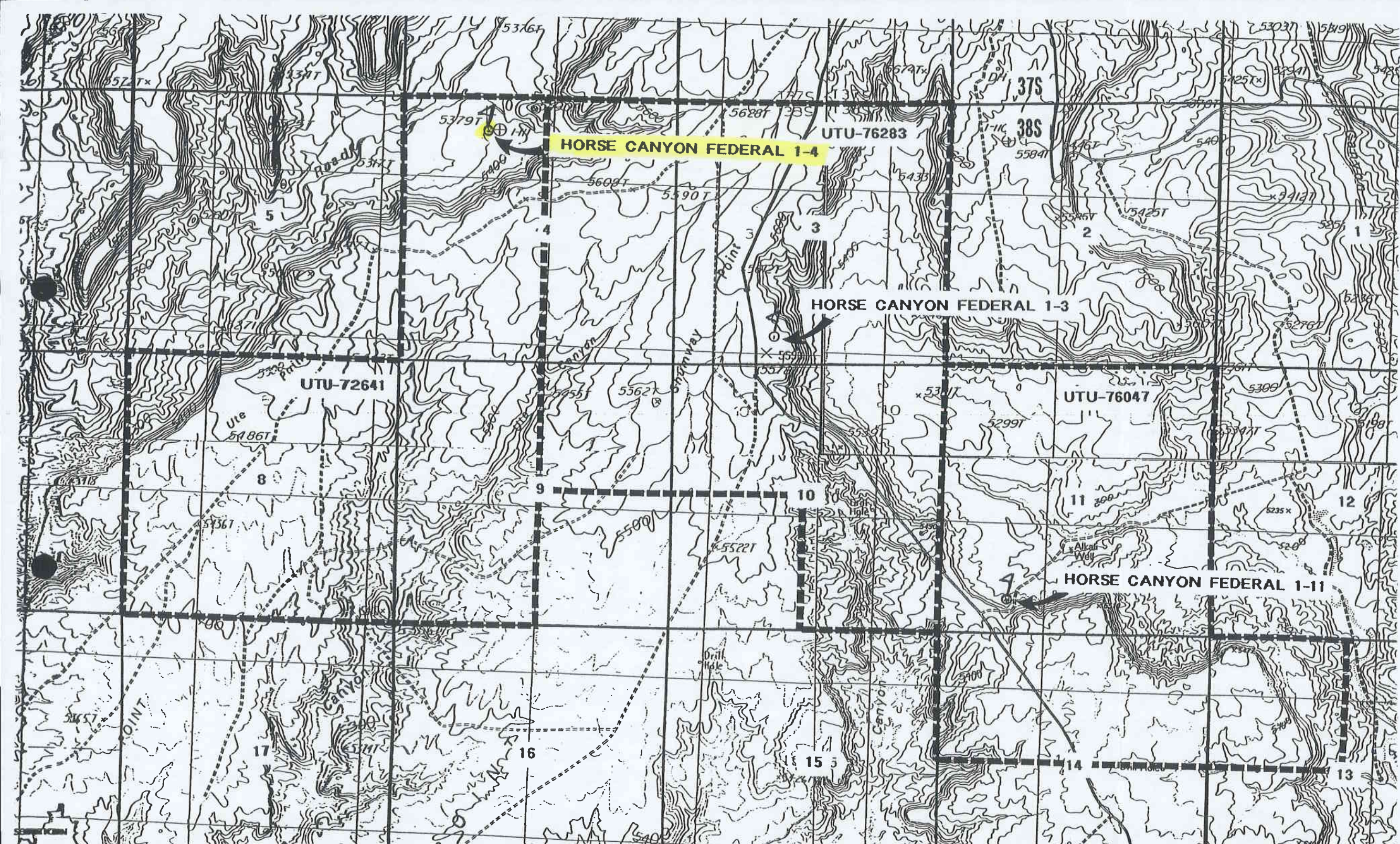
I will coordinate with the Moab and Monticello BLM offices to insure timely notification of their approvals to all parties. Let me know if you need anything more at this time.

Sincerely,

A handwritten signature in cursive script, appearing to read "D. Lehman".

Donald D. Lehman
Exploration Manager

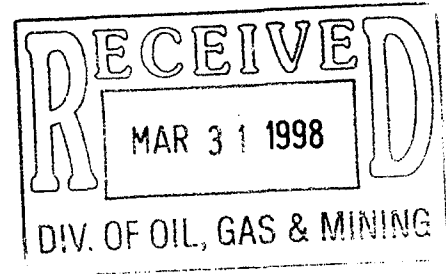




MILLER ENERGY, INC.

March 30, 1998

Mike Hebertson
Utah Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801




RE: Miller Energy, Inc.
Horse Canyon Federal 1-3 & 1-4 APD's
San Juan Co., Utah

Dear Mike,

Enclosed please find copies of the APD's for the wells referenced above.

Sincerely,


Donald D. Lehman
Exploration Manager

cc: Mike Miller

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK

DRILL ☒ DEEPEN ☐

b. TYPE OF WELL

OIL WELL ☒

GAS WELL ☐

OTHER ☐

SINGLE ZONE ☐

MULTIPLE ZONE ☐

2. NAME OF OPERATOR

Miller Energy Inc

3. ADDRESS AND TELEPHONE NO.

7900 Moorsbridge Rd, Blanding, NM 87802 (616) 324-3390

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)*

At surface

148 484' FNL 1366' FWL (NE/NW) Section 4 T38S, R23E
At proposed prod. zone

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

10-1/2 Miles Southeast of Blanding, Utah

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST

PROPERTY OR LEASE LINE, FT.

(Also to nearest drg. unit line, if any)

484'

18. DISTANCE FROM PROPOSED LOCATION*

TO NEAREST WELL, DRILLING, COMPLETED,
OR APPLIED FOR, ON THIS LEASE, FT.

4000'

16. NO. OF ACRES IN LEASE

1278.41

17. NO. OF ACRES ASSIGNED

TO THIS WELL

160

19. PROPOSED DEPTH

6300'

20. ROTARY OR CABLE TOOLS

Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

5376' GL 5391' KB

22. APPROX. DATE WORK WILL START*

March 25, 1998

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17-1/2"	13-3/8" J55	48#	250'	To surface 300sks class "b"
12-1/4"	9-5/8" J55	36#	2250'	To surface 450sks class "b"
7-7/8"	5-1/2" J55	15.5#	6300'	From TD to 500' above top most producing zone w/± 400 sks class "h"

See attached Drilling and Surface Use program.

Bond coverage pursuant to CFR 3104 for lease activities is being provided for by Miller Energy Inc. under Federal Statewide Bond # UT1092.

Miller Energy Inc. will be responsible for compliance with all of the lease conditions for that portion of the lease associated with this application.

If necessary, a Utah Spacing Exception will be applied for separately.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED

Robert R. Griffie
Robert R. Griffie

TITLE Agent for Miller Energy DATE March 5, 1998

(This space for Federal or State office use)

PERMIT NO.

43-037-31799

APPROVAL DATE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

CONDITIONS OF APPROVAL, IF ANY:

Federal Approval of this
Action is Necessary

APPROVED BY

Bradley G. Hill

TITLE

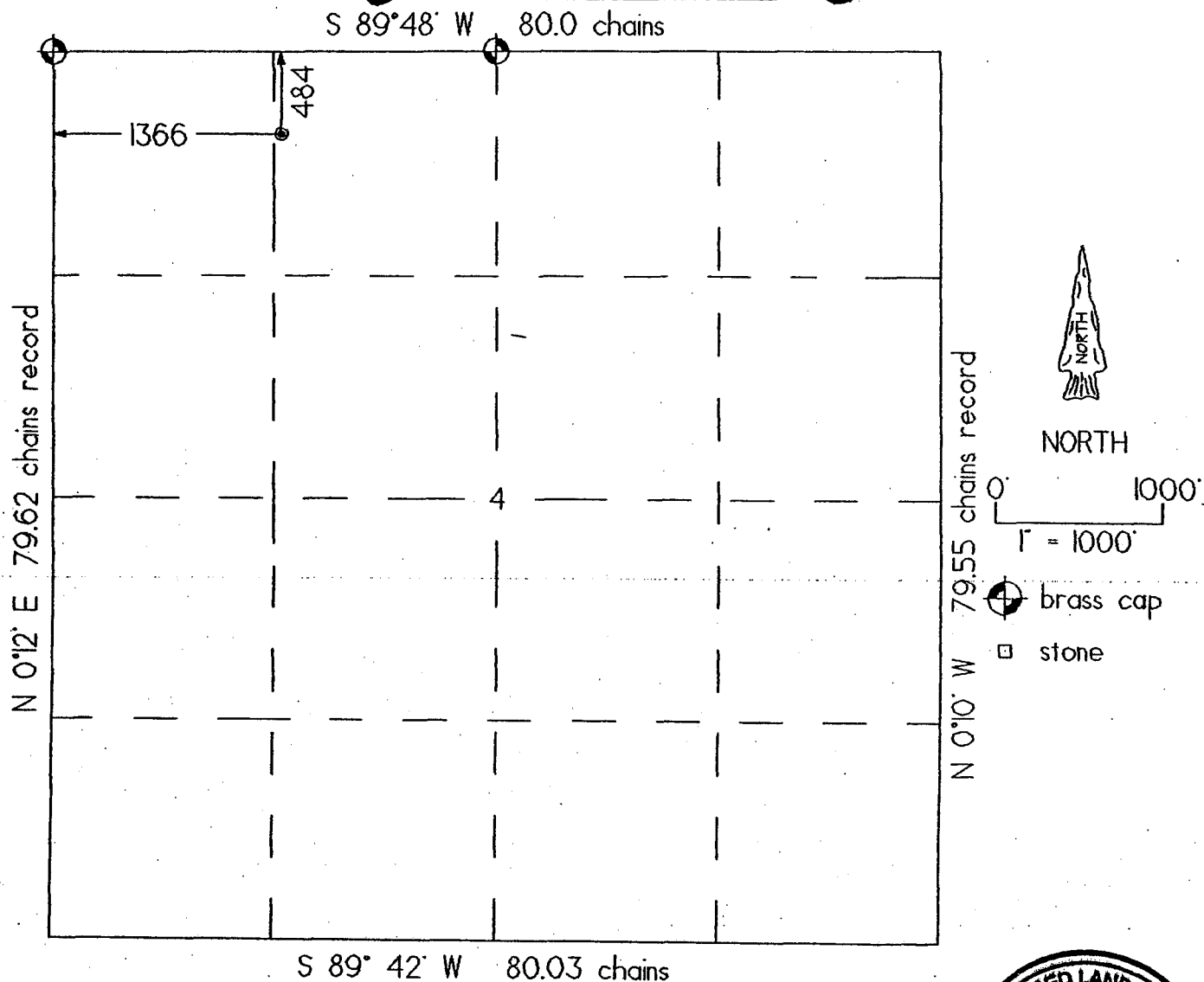
BRADLEY G. HILL
RECLAMATION SPECIALIST III

DATE

4/9/98

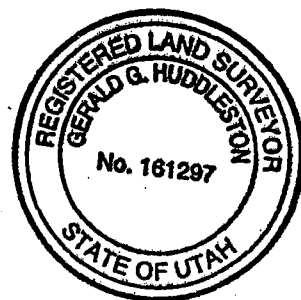
*See Instructions On Reverse Side

Well Location Plat



Well Location Description

MILLER ENERGY, INC.
Horse Canyon Federal I-4
484' FNL & 1366' FWL
Section 4, T.38 S., R.23 E., SLM
San Juan County, UT
5376' grd. el.
state plane : 316.860 N & 2.609.514 E (NAD 27)



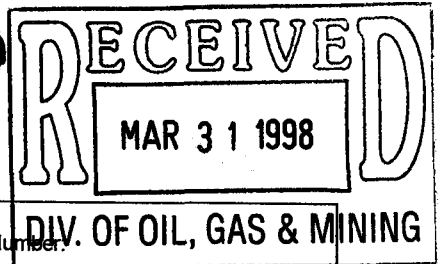
27 February 1998

Gerald G. Huddleston

Gerald G. Huddleston, LS

The above is true and correct to my knowledge and belief.

HUDDLESTON LAND SURVEYING - BOX KK - CORTEZ, CO - (970) 565 -3330



NOTICE OF STAKING

NOTICE OF STAKING (Not to be used in place of Application for Permit to Drill, Form 3160-3)		6. Lease Number: UTU 72641	
1. Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> (Specify)		7. If Indian, Allottee or Tribe Name: n/a	
2. Name of Operator: Miller Energy Inc.		8. Unit Agreement Name:	
3. Name of Specific Contact Person(s): Don Lehman, Miller Energy (616) 324-3390 Robert Griffiee, Twin Star (505) 326-3753 (agent)		9. Farm or Lease Name: Horse Canyon Federal	
4. Address & Phone No. of Operator or Agent: Operator: 7900 Moorsbridge Rd., Kalamazoo MI 49024 Agent: 3005 Northridge Dr., Suite L, Farmington NM 87401		10. Well No. 1-4	
		11. Field Name Wildcat	
5. Surface Location of Well: 500' FNL x 1450' FWL NE/4 NW/4 Section 4 T38S R23E well to be staked based on seismic and topography		12. Sec., T., R., M., or Blk. Section 4, T38S, R23E	
		13. County San Juan	14. State Utah
15. Formation Objective(s) Ismay, Desert Creek, Akah		16. Estimated Total Depth 6300'	
17. Additional Information (include surface owner's name address and telephone number if known). Distance in miles and direction from nearest town or post office. Surface Owner: Bureau of Land Management Location is approximately 10 miles southeast of Blanding Utah See attached topographic maps			
18. Signed: <u>Robert R. Griffiee</u> Title: <u>Agent</u> Date: <u>February 24, 1998</u>			

Miller Energy, Inc.
Horse Canyon Federal 1-4
484' FNL, 1366' FWL (NE/4 NW/4)
Sec. 4, T38S R23E
San Juan County, Utah
Fed. Lse. #UTU-72641

DRILLING PROGRAM

All operations will be conducted in such a manner that full compliance is made with applicable laws, regulations (43 CFR 3100), Onshore Oil & Gas Orders, the approved plan of operations, and the conditions of approval. The operator is fully responsible for the actions of its subcontractors. A copy of these conditions will be furnished to the field representative to ensure compliance.

BLM Notifications

Notify Jeff Brown of the Monticello BLM Field Office in Monticello, Utah, at (801) 587-1525, or at home (801) 587-2046 for the following:

2 days prior to commencement of dirt work, construction and reclamation;

1 day prior to spudding;

50 feet prior to reaching each casing setting depth;

3 hours prior to testing BOPE

If the person at the above number cannot be reached, notify the Moab BLM Field Office at (801) 259-6111. If unsuccessful, contact one of the people listed below.

Well abandonment operations require 24 hours advance notice and prior approval. In the case of newly drilled dry holes, verbal approval can be obtained by calling the Moab Field Office at (801) 259-6111. If approval is needed after work hours, you may contact the following:

Gary Torres, Petroleum Engineer Office: (801) 587-2141
Home: (801) 587-2705

Eric Jones, Petroleum Engineer Office: (801) 259-2117
Home: (801) 259-2214

SURFACE ELEVATION – 5,376' GL, 5,391' KB

SURFACE FORMATION – Morrison – Fresh water intervals possible to 250'.

ESTIMATED FORMATION TOPS (Water, oil, gas, and/or other mineral bearing formations).

Morrison	Surface	
Entrada	1,090'	Sandstone, shales & siltstones, some water bearing
Navajo	1,760'	Sandstone, shales & siltstones, some water bearing
Chinle	2,290'	Shales & siltstones
Cutler	3,160'	Sandstone, shales & siltstones, some water bearing
Honaker Trail	4,370'	Sandstone, shales & siltstones, some water bearing
Upper Ismay	5,870'	Anhydrite and limestones
Hoverweep Shale	5,990'	Shale

DRILLING PROGRAM

Lower Ismay	6,020'	Dolomites, limestones, and anhydrite, some are water, oil, and/or gas bearing
Gothic Shale	6,075'	Shale
Desert Creek	6,110'	Dolomites, limestones, and anhydrite, some are water, oil, and/or gas bearing
Chimney Rock Shale	6,190'	Shale
Akah	6,210'	Limestones and anhydrites, some are water, oil, and/or gas bearing
TOTAL DEPTH	6,300'	

All fresh water and prospectively valuable minerals encountered during drilling will be recorded by depth and will be cased and cemented. When possible, water flow rates will be measured and samples taken and analyzed with the results being submitted to BLM. All oil and gas shows will be tested to determine commercial potential.

CASING PROGRAM

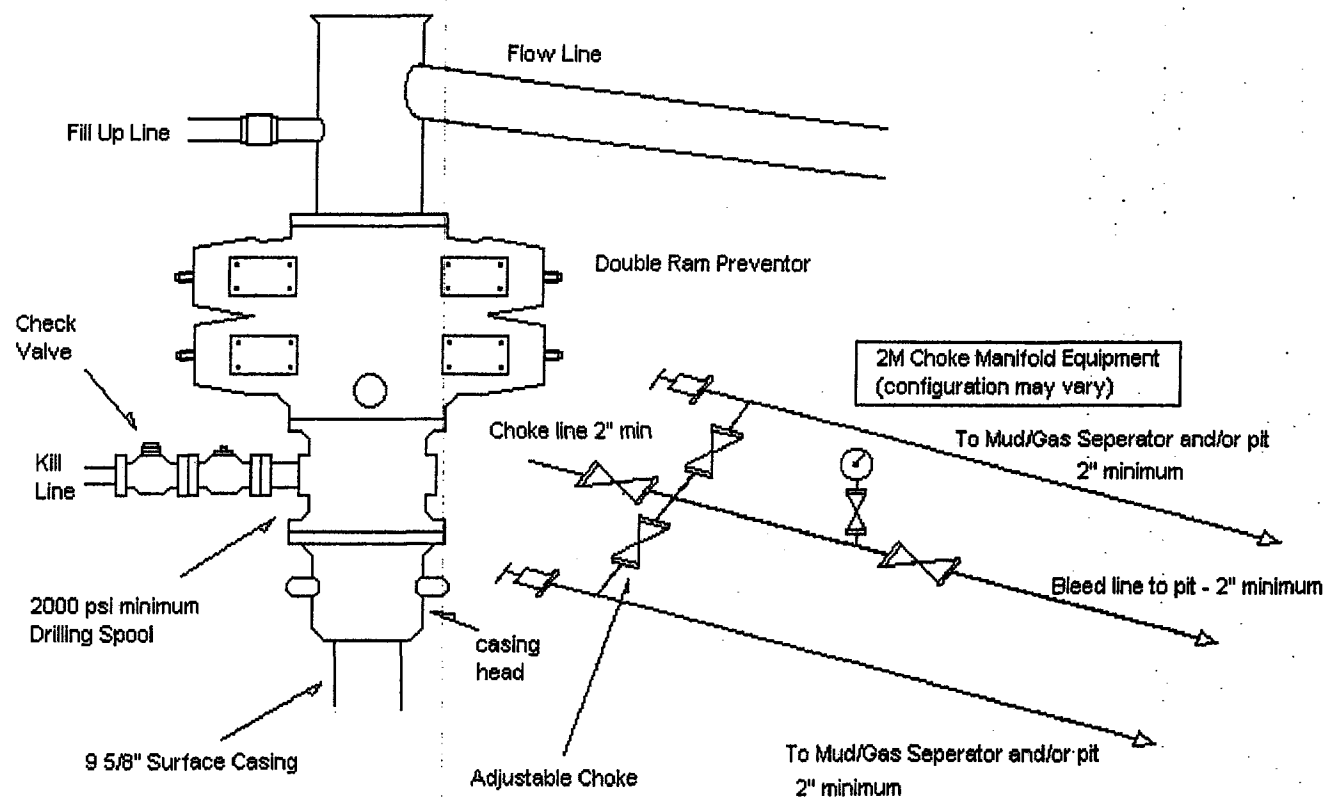
Depth	Hole Dia.	Csg. Dia.	Casing Wt. & Grd	Cement (See below)
0 - 250' (Conductor)	17 1/2"	13 3/8"	J-55 48# STC New	To surface (±300 sks "B")
0 - 2,315' (Surface Csg)	12 1/4"	9 5/8"	J-55 36# LTC New	To surface (±450 sks "B")
0 - TD (Prod. Csg)	7 7/8"	5 1/2"	J-55 15.5# LTC New	TD to 500' above prod Zone (±400 sks "H")

NOTE: Actual Production Casing cement volumes to be based on geological top of the highest potentially productive zone and on actual hole volumes calculated from electric log caliper.

PRESSURE CONTROL (See attached BOPE schematic)

BOP'S and choke manifold will be installed and pressure tested before drilling out from under the surface casing (subsequent pressure testing will be performed whenever pressure seals are broken) and then will be checked daily as to mechanical operating condition. BOP's will be pressure tested at least once every 30 days. Ram type preventors and related pressure control equipment will be pressure tested to rated working pressure of the stack assembly if a test plug is used. If a plug is not used, the stack assembly will be tested to the rated working pressure of the stack assembly or to 70% of the minimum internal yield of the casing, whichever is less. Annular type preventors will be pressure tested to 50% of their rated working pressure. All casing strings will be pressure tested to 0.22 psi/ft. or 1500 psi, whichever is greater, not to exceed 70% of internal yield.

2000 psi Blow-out Preventor Diagram



Annular preventor may be substituted for Double Gate preventor

MUD PROGRAM

0' - 250'	Spud mud
250' - 2,315'	Fresh water/gel/lime mud - water flows possible. Weight to be maintained with production brine water or barite if necessary
2,315' - TD	Low Solids, gel, PHPA
	Mud Weight 8.4 to 9.3 ppg. Vis 28 - 50 sec
	W.L. 15cc or less

Sufficient mud materials to maintain mud properties, control lost circulation, and to contain expected formation pressure will be available at the well site. (Note: The possibility of 9.3 ppg mud weight is based on typical mud properties, not on anticipated formation pressure.)

AUXILIARY EQUIPMENT

- A) Upper kelly cock
- B) Inside BOP or stab-in valve (available on rig floor)
- C) Mud system volume will be monitored visually.

LOGGING, CORING, TESTING PROGRAM

- A) Logging: DLL-SFL-GR - TD to base of surface casing
CNL-FDC-GR - TD to base of surface casing
- B) Coring: None
- C) Testing: Two possible DST's - Ismay Fm. Drill Stem tests may be run based on mud log shows and penetration rates.

ABNORMAL CONDITIONS

- A) Pressure: No abnormal conditions are anticipated. Cutler/Ismay/Desert Creek pressure gradient = 0.40 psi/ft (estimated)
- B) Temperatures: No abnormal conditions are anticipated
- C) H2S: None anticipated
- D) Estimated bottomhole pressure: 2,100 psi

ANTICIPATED START DATE

March 25, 1998

COMPLETION

The location pad will be of sufficient size to accommodate all completion activities and equipment. A string of 2-7/8" 6.5# j-55 tubing will be run for a flowing/pumping string. A Sundry Notice will be submitted with a revised completion program if warranted.

SURFACE CASING, BOP & CENTRALIZER DESIGN

Miller Energy, Inc.
Horse Canyon Federal 1-4
484' FNL, 1366' FWL, Sec. 4, T38S R23E
San Juan County, Utah
Fed. Lse. #UTU - 72641

Proposed Total Depth - 6,300'
Proposed Depth - Surface Casing - 2,315'
Estimated Pressure Gradient - 0.43 psi/ft.
Bottom Hole Pressure at 6,300' (T.D.)
 $0.43 \text{ psi/ft} \times 6,300' = 2,709 \text{ psi}$

Hydrostatic head - gas/oil cut mud - 0.22 psi/ft
 $0.22 \text{ psi/ft} \times 6,300' = 1386 \text{ psi}$

Maximum Design Surface Pressure

Bottom Hole Pressure - hydrostatic head
 $(0.43 \text{ psi/ft} \times 6,300') - (0.22 \text{ psi/ft} \times 6,300')$
 $2,709 \text{ psi} - 1,375 \text{ psi} = 1,323 \text{ psi}$

Casing Strengths - 9 5/8" J-55 STC

<u>Grd & Wt.</u>	<u>Tension (lbs)</u>	<u>Burst (psi)</u>	<u>Collapse (psi)</u>
J-55 36#	394,400	3,520	2,020

Safety Factors

S.F., Tension (in air) = $394400 / (2315 \times 36) = 4.73$

S.F., Burst = $3520 / 1386 = 2.54$

S.F., Collapse = $2020 / (.052 \times 2315 \times 9.3) = 1.80$

- Use 2,315' 9 5/8" J-55 36# STC
- Use 2,000 psi, wp BOP stack

Centralizers

5 centralizers total. One placed in the middle of the bottom joint, one placed every other collar thereafter for three additional centralizers, and one near the surface at appx 160'.

REQUIRED APPROVALS, REPORTS AND NOTIFICATION

Required verbal notification are summarized in Table 1 (enclosed).

Building Location – Contact the BLM Petroleum Engineering technician at the Monticello BLM Field Office at least 48 hours prior to commencing construction of location.

Spud – the spud date will be reported to BLM 24 hours prior to spudding. Written notification in the form of a Sundry Notice (Form 3160-5) will be submitted to the Moab BLM Field Office within 24 hours after spudding, regardless of whether spud was made with a dry hole digger or a standard drilling rig.

Daily Drilling Reports – Daily drilling reports shall detail the progress and status of the well and shall be submitted to the Moab BLM Field Office on a weekly basis.

Monthly Reports of Operations – In accordance with Onshore Oil and Gas Order No. 1, this well shall be reported on Minerals Management Service (MMS) Form 3160, "Monthly Report of Operations," starting the month in which operations commence and continuing each month until the well is physically plugged and abandoned. This report will be filed directly with MMS.

Sundry Notices – there will be no deviation from the proposed drilling and/or workover program without prior approval. "Sundry Notices and Reports on Wells" (Form 3160-5) will be filed for approval for all changes of plans and other operations in accordance with 43 CFR 3162.3-2. Safe drilling and operating practices must be observed.

Drilling Suspensions – Operations authorized by this permit shall not be suspended for more than 30 days without prior approval of the Moab BLM Field Office. All conditions of this approval shall be applicable during any operations conducted with a replacement rig.

Undesirable Events – Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be immediately reported to the BLM in accordance with requirements of NTL-3A.

Cultural Resources – If cultural resources are discovered during construction, work that might disturb the resources is to stop, and the BLM is to be notified.

First Production – Should the well be successfully completed for production, the Moab BLM Field Office will be notified when the well is placed in producing status. Such notification may be made by phone, but must be followed by a sundry notice or letter not later than five (5) business days following the date on which the well is placed into production.

A first production conference will be scheduled as soon as the productivity of the well is apparent. This conference should be coordinated through the Monticello BLM Office. The Monticello BLM Field Office shall be notified prior to the first sale.

Well Completion Report – Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted to the Moab BLM Field Office not later than thirty (30) days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3162.4-1. Two copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover and/or completion operations, will be filed with Form 3160-4. When requested, samples (cutting and/or samples) will be submitted to the Moab BLM Field Office.

Venting/Flaring of Gas – Gas produced from this well may not be vented/flared beyond an initial, authorized tested period of 30 days or 50 MMcf, whichever occurs first, without the prior, written approval of the BLM. Should gas be vented or flared without approval beyond the authorized test period, the well may be ordered shut-in until the gas can be captured or approval to continue the venting/flaring as uneconomic is granted. In such case, compensation to the lessor shall be required for that portion of the gas that is vented/flared without approval and which is determined to have been avoidably lost.

Produced Water – Produced waste water may be confined to an unlined pit for a period not to exceed 90 days after initial production. During the 90 day period, an application for approval of a permanent disposal method and location, along with the required water analysis, will be submitted to the Moab Field Office for approval pursuant to Onshore Oil and Gas Order No. 7.

Off-Lease Measurement, Storage, Commingling – Prior approval must be obtained from the Moab BLM Field Office for off-lease storage and/or commingling (either down-hole or at the surface)

Plugging and Abandonment – If the well is completed as a dry hole, plugging instructions must be obtained from the Moab BLM Field Office prior to initiating plugging operations.

A "Subsequent Report of Abandonment" (Form 3160-5) shall be filed with the Moab BLM Field Office within thirty (30) days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restorations. Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR 3162.6. Final abandonment will not be approved until the surface reclamation work required by the approved APD or approval abandonment notice has been completed to the satisfaction of the BLM, or the appropriate surface managing agency.

TABLE 1 - BLM NOTIFICATIONS

Notify Jeff Brown of the Monticello BLM Field Office in Monticello, Utah, at (801) 587-1525, or at home (801) 587-2046 for the following:

2 days prior to commencement of dirt work, construction and reclamation;

1 day prior to spudding

50 feet prior to reaching each casing setting depth;

3 hours prior to testing BOPE

If the person at the above number cannot be reached, notify the Moab BLM Field Office at (801) 259-6111. If unsuccessful, contact one of the people listed below.

Well abandonment operations require 24 hours advance notice and prior approval. In the case of newly drilled by dry holes, verbal approval can be obtained by calling the Moab Field Office at (801) 259-6111. If approval is needed after work hours, you may contact the following:

Gary Torres, Petroleum Engineer	Office: (801) 587-2141 Home: (801) 587-2705
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Eric Jones, Petroleum Engineer	Office: (801) 259-2117 Home: (801) 259-2214
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Miller Energy, Inc.
Horse Canyon Federal 1-4
(NE/4, NW/4)
484' FNL, 1366' FWL, Sec. 4, T38S R23E
San Juan County, Utah
Fed. Lse. #UTU-72641

SURFACE USE PLAN

WELL LOCATION AND INTRODUCTION:

The proposed location is 484' FNL and 1366' FWL of section 4. The well site was surveyed and staked on February 27, 1998, by Gerald Huddleston, Surveyor, on a site that was geologically, and topographically acceptable. An on-site meeting was held on February 27, 1998. Attending were Jeff Brown - BLM, and Humber Fierro - Agent for Miller Energy, Inc.

BLM NOTIFICATIONS

Notify Jeff Brown of the Monticello BLM Field Office in Monticello, Utah, at (801) 587-1525, or at home (801) 587-2046 for the following:

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Gary Torres, Petroleum Engineer	Office: (801) 587-2141
	Home: (801) 587-2705

Eric Jones, Petroleum Engineer	Office: (801) 259-2117
	Home: (801) 259-2214

DIRECTIONS TO LOCATION

From Blanding, Utah, travel 1 miles south, go east on County Road 219, go southeast on County Road 206 for 6.7 miles. Go south on County Road 201 for 2.5 miles.

1) EXISTING ROADS

- A) The well is an Exploratory well.
- B) Existing roads within 2 miles – Graveled county road (CR 206) 2.25 miles north of location. Two track county road (CR 201) to within 0.5 miles of the location.
- C) Plans for improvement and/or maintenance of existing roads are no; alterations to CR 206, and improvement of CR 201 as discussed below, and as negotiated with San Juan County road engineer.

2) PLANNED ACCESS ROADS – 2.25 miles upgraded construction Right of Way

- A) Subgrade (Running surface) width to be approximately 16' – 18', total disturbed width to be 45' – 50'.
- B) Borrow ditches to be backsloped 3:1 or shallower.
- C) Maximum grades – 2% for 400'.
- D) Drainage to consist of borrow ditches on both sides. Low water crossings will be used during drilling, as conditions dictate, and upon completion, crossings will be upgraded w/corrugated metal pipes and/or gravel bottomed low water crossing, if necessary. Culvert sizes to be a minimum of 18" diameter, or as stipulated by BLM.
- E) Surfacing material to consist of native material from borrow ditches, topsoil will be buried in road crown. Gravel surfacing will be applied prior to commencing production operations. Gravel will be obtained from permitted commercial sources.
- F) No major cuts are necessary.
- G) Gate and cattleguard installation is to be determined.
- H) Surface disturbance and vehicular travel will be limited to the approved location and access road. Any additional area needed must be approved by the area manager in advance.
- I) If a right-of-way is necessary, no surface disturbing activities shall take place on the subject right-of-way until the associated APD is approved. The holder will adhere to conditions of approval of the Surface Use Program of the approved APD, relevant to any right-of-way facilities.
- J) If a right-of-way is secured, boundary adjustments in the lease or unit shall automatically amend the right-of-way to include the portion of the facility no longer contained within the lease or unit. In the event of an automatic amendment to this right-of-way grant, the prior on lease/unit conditions of approval of this facility will not be affected even though they would now apply to facilities outside of the lease/unit as a result of a boundary adjustment. Rental fees, if appropriate, shall be recalculated based on the conditions of this grant and the regulations in effect at the time of an automatic amendment.
- K) If at any time the facilities located on public lands authorized by the terms of the lease are no longer included in the lease (due to a contraction in the unit or other lease or boundary change) the BLM will process a change in authorization to the

1) Planned Access Roads – (continued)

appropriate statute. The authorization will be subject to appropriate rental, or other financial obligations determined by the authorized officer.

- L) If the well is productive, the access road will be rehabilitated or brought to Resource (Class III) Road Standards within 60 days of dismantling the rig. If upgraded, the access road must be maintained at these standards until the well is properly abandoned. If this time frame cannot be met, the Area Manager will be notified so that temporary drainage control can be installed along the access road.

2) LOCATION OF EXISTING WELLS

Within a 2 – mile radius

Drilling	None
Abandoned-	T38S R23E Sec 10:SE/4 Sec 11:NW/4 Sec 14:SE/4 NE/4 Sec 15:NW/4 NW/4
Proposed -	Horse Canyon Federal 1-3, SW/4 section 3
Disposal injection-	None
Shut-In -	None
Completed-	Horse Canyon Federal 1-10, NE/4 section 10

4) LOCATION OF EXISTING PRODUCING FACILITIES OPERATED BY *Miller Energy, Inc.*

Within two miles: Horse Canyon Federal 1-10, NE/4 Section 10

NEW PRODUCTION FACILITIES PROPOSED

- A) Facilities to be constructed on location will be applied for separately. Production equipment will be placed away from edge of "fill."
- B) Dimension of Proposed Facility is approximately 300' x 200'. Pad size will be reduced to minimum size necessary to conduct safe operations cuts and fills will be reduced to 2:1 or shallower.
- C) Site preparation for production will be done with standard excavation equipment using native materials. Additional surface material will be obtained from commercial sources or an approved borrow area.

NEW PRODUCTION FACILITIES PROPOSED (continued)

- D) All above ground permanent structures including production equipment will be painted Juniper Green or as stipulated by the BLM.
- E) Production facilities may vary according to actual reservoir discovered and will be designed upon completion of well tests.
If well is a producer, all production facilities will be authorized by Sundry Notice.
- F) All pits will be fenced on all sides.
- G) No facilities will be constructed off location.
- H) Rehabilitation of unneeded, previously disturbed areas will consist of backfilling and contouring the reserve pit area, back sloping and contouring all cut and fill slopes. These areas will be re-seeded. Refer to plans for restoration of surface for additional details.
- I) Pits which contain oil will be netted.
- J) All site security guidelines identified in 43 CFR 3162.7-5 and Onshore Order No.3 shall be followed.
- K) If a gas meter is constructed, it will be located on lease within 500' of the wellhead. The gas flowline will be buried from the wellhead to the meter and will be buried downstream of the meter until it leaves the well pad. Meter runs will be housed and/or fenced. The gas meter shall be calibrated prior to first sales and shall be calibrated quarterly thereafter. All gas production and measurement shall comply with the provisions of 43 CFR 3162.7-3, Onshore Oil & Gas Order No. 5 and American Gas Association (AGA) Report No. 3.
- L) If a tank battery is constructed on this lease, it will be surrounded by a berm of sufficient capacity to contain 1 ½ times the storage capacity of the largest tank. All loading lines and valves will be placed inside the berm surrounding the tank battery. All oil production and measurement shall conform to the provisions of 43 CFR 3162.7-3 and Onshore Oil & Gas Order No. 4.
- M) Production facilities on location may include a lined or unlined water pit as specified in NTL-2B. If water is produced from the well, an NTL-2B application must be submitted.

5) LOCATION OF WATER SUPPLY

Water will be purchased from the town of Blanding and will be transported by truck. Alternatively, water may be hauled from a private source which has been previously permitted by R&W Water Service. Water may be hauled from Montezuma Creek under R&W Water Service permits.

6) SOURCE OF CONSTRUCTION MATERIALS

- A) Construction materials will consist of native materials from borrow ditches and location areas.
- B) Surfacing materials will be obtained from available permitted sources and consist of pit gravel.

7) WASTE DISPOSAL

- A) Drill cuttings will be buried in reserve pit.
- B) Fresh water drilling fluids will be evaporated then buried in the reserve pit when dry. Oil based fluids will be removed from drill cuttings to the maximum extent possible, then the cuttings solidified and buried in a separate pit.
- C) Produced fluid will be contained in test tanks during completion and testing.
- D) Sewage Disposal facilities will be in accordance with State and Local Regulations. Sewage will not be buried on location or placed in a borehole. Chemical toilets and/or holding tanks will be utilized and the contents hauled to an approved disposal site.
- E) Garbage and other waste – burnable waste will be contained in a possible trash cage which will be totally enclosed with small mesh wire. Cage and contents will be transported to a trash dumped at a D.E.Q. approved Sanitary Landfill upon completion of operations.
- F) Trash will be picked up if scattered and contained in trash cage as soon as practical after rig is moved off.
- G) Reserve pit will be fenced "stock tight" on three sides during drilling operations, and on fourth side at time of rig release. Pit will remain fenced until backfilled. (See Section 9 Wellsite Layout Part E for further reserve pit requirements).
- H) Upon release of the drilling rig, rat hole and mouse hole will be filled. Debris and excess equipment will be removed.

8) ANCILLARY FACILITIES

No ancillary facilities will be necessary.

* 9) WELLSITE LAYOUT

- A) See attached drillsite plat and cut/fill diagram.
- B) Reserve pit will not require bentonite lining as per Jeff Brown, BLM.
- C) Flare pit will be located adjacent to the reserve pit at least 100' from the wellbore.
- D) The reserve pit fence will be kept in good repair and maintained in a tight condition. The reserve pit fence will be constructed as follows:

--32" high woven wire fence, with 2 smooth wire stands set 4" and 16" above the woven wire. Total fence height will be 48".

--posts will be set no farther apart than 16.5'

--corners will consist of posts that are at least 6" in diameter (h-brace construction will not be required due to the short distance between corners and temporary nature of the fence. All corners will be stabilized with a "deadman".

--steel t-posts will be placed between corner posts.

--wire stays will be installed between T-posts

--there will be a 10' wide distance between the top lip of the reserve pit and reserve pit fence..

10) SURFACE RESTORATION

- A) Topsoil will be removed prior to location construction from all disturbed areas that will be in "cut" and from the reserve pit area. Topsoil depth to be removed as stipulated by BLM. Topsoil from fill areas will not be removed but will be stockpiled with any excess material.
- B) Backfilling, leveling and contouring are planned as soon as all pits have dried. Waste and spoils materials will be buried immediately after drilling is completed. If production is obtained, the unused area will be restored as soon as possible.
- C) The soil banked material will be spread over the area. Revegetation will be accomplished by planting mixed grasses as per formula by BLM. Revegetation is recommended for road area as well as around drill pad.
- D) The rehabilitation will begin after the drilling rig is removed. Removal of oil or other adverse substances will begin immediately or area will be flagged and fenced. Other cleanup will be done as needed.
- E) Reclamation of the entire disturbed area will be accomplished by grading the area to approximately the natural contour, applying top soil and re-establishing vegetation over the area. Topsoil shall be spread evenly over the area. A seed shall be prepared by scarifying the soil surface to a depth 4 inches. The operator shall use a harrow, disc or similar implement with tools spaced no greater than six inches apart. Seeds shall be lightly covered if broadcast methods are used. Seeding will be done between October 1, and February 28. The following prescription of pure live seed shall be applied:

2#/ acre PLS - Fourwing saltbush

2#/ acre PLS - Galleta grass

2#/ acre PLS - Indian ricegrass

2#/ acre PLS - Globemallow

1#/ acre PLS - Sand dropseed

9#/ acre PLS - TOTAL

- F) An above-ground tubular metal dry-hole marker will be erected over the drill-hole upon cessation of drilling and/or testing operations. The marker will be inscribed with the operator's name, well number, well location, and federal lease number. Upon request of the surface owner, the casing may be cut off three (3) feet below reclaimed ground surface (or below plow depth) with a metal plate affixed to the top providing the same well information as stated above. This must consist of a piece of pipe not less than four inches in diameter and ten feet in length, of which four feet shall be above the general ground level and the remainder being imbedded in cement. The top of the pipe must be closed by a welded or screw cap, cement or other means.

11) GENERAL INFORMATION

- A) Project area is situated in the undulated uplands west of the Montezuma Creek.
- B) Topographic and geologic features – moderate relief area, moderately drained, silt deposition, surrounded by cliffs and rolling uplands with highly eroded drainages.
- C) Soil characteristics – clay loam.
- D) Flora consists of Shadscale, Fourwing saltbush, Pricklypear cactus, Musterweed, Cheatgrass & short grasses.
- E) Fauna – none observed, assume deer, coyotes, rabbits, raptors, and rodents.
- F) Concurrent surface use – grazing and hunting.
- G) Mineral Lessor – Bureau of Land Management.
- H) Surface Owner – Drillsite – Bureau of Land Management
Access - Bureau of Land Management
- I) Proximity of water, occupied dwellings or other features – County Road #408 – 2 miles southwest of location.
- J) Archaeological, cultural and historical information has been submitted separately by 4 Corners Archaeological Services.
- K) Historic, Cultural, and Paleontological Resources

The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized officer (AO). Within 5 working days the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places;
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
- a timeframe for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibilities for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

"the holder of this authorization shall immediately bring any paleontological resources or fossils discovered as a result of operations under this authorization to the attention of the authorized officer. The holder shall suspend all activities in the vicinity of such discovery until notified to proceed by the authorized officer. The authorized officer will evaluate, or will have evaluated, such discoveries not later than 5 working days after being notified, and will determine what action shall be taken with respect to such discoveries. The decision as to the appropriate measures to mitigate adverse effects to significant paleontological resources will be made by the authorized officer after consulting with the holder. The holder may be responsible for the cost of any investigation necessary for the evaluation, and for any mitigative measures."

12) LESSEE'S OR OPERATOR'S REPRESENTATIVE

Operator

Miller Energy, Inc.
2900 Moorsbridge Road
Kalamazoo, MI 49002
(616) 324 - 3390
Don Lehman - Exploration Manager

Agent

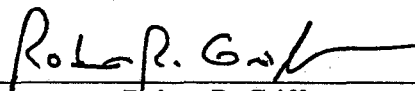
Twin Stars Ltd.
3005 Northridge Dr., Suite L
Farmington, NM 87401
(505) 326-3753
Robert R. Griffiee - Consulting Engineer

Please Contact Robert R. Griffiee concerning this permit.

13) CERFITICATION

I hereby certify that I, or persons under my direct supervision, have inspected the drillsite and access road; that I am familiar with the conditions which presently exist; that the statements made in this plan area, to the best of my knowledge, are true and correct; and that the work associated with the operations proposed herein will be performed by Miller Energy, Inc. and its contractors and sub-contractors in conformity with this plan and conditions under which it is approved. I also certify responsibility for the operations conducted on that portion of the leased land associated with this application, with bond coverage being provided under a letter of credit as submitted to the BLM for nationwide bond coverage. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

March 5, 1998



Robert R. Griffiee
Agent for Miller Energy, Inc.
Consulting Petroleum Engineer

front
South
Laydown



Cross section

WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 03/31/98

API NO. ASSIGNED: 43-037-31799

WELL NAME: HORSE CANYON FED 1-4
OPERATOR: MILLER ENERGY INC (N6720)
CONTACT: Don Lehman (Cell) 324-3390

PROPOSED LOCATION:

NENW 04 - T38S - R23E
SURFACE: 0484-FNL-1366-FWL
BOTTOM: 0484-FNL-1366-FWL
SAN JUAN COUNTY
UNDESIGNATED FIELD (002)

LEASE TYPE: FED
LEASE NUMBER: UTU-72641
SURFACE OWNER: BLM

PROPOSED FORMATION: AKAH

INSPECT LOCATION BY: / /

TECH REVIEW	Initials	Date
Engineering		
Geology		
Surface		

RECEIVED AND/OR REVIEWED:

☒ Plat
☒ Bond: Federal ☒ State ☐ Fee ☐
(No. UT1092)
☒ Potash (Y/N)
☒ Oil Shale (Y/N) *190-5(B)
☒ Water Permit
(No. Blanding & R. W. Water Svs.)
☒ RDCC Review (Y/N)
(Date: _____)
N/A St/Fee Surf Agreement (Y/N)

LOCATION AND SITING:

 R649-2-3. Unit

 R649-3-2. General

☒ R649-3-3. Exception

 Drilling Unit

Board Cause No: _____

Date: _____

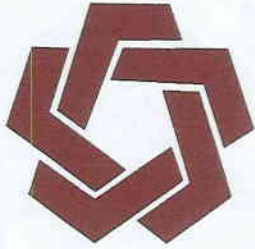
COMMENTS: * Farmout agreement from Flying Q n.e. 6 in progress.

Req. written consent from Flying Q for except. loc. (Rec'd 4-8-98)

STIPULATIONS: ① Appropriate information has been submitted to

DOGM BY MILLER ENERGY INC. AND ADMINISTRATIVE APPROVAL
OF THE REQUESTED EXCEPTION LOCATION IS HEREBY GRANTED.

② FEDERAL APPROVAL



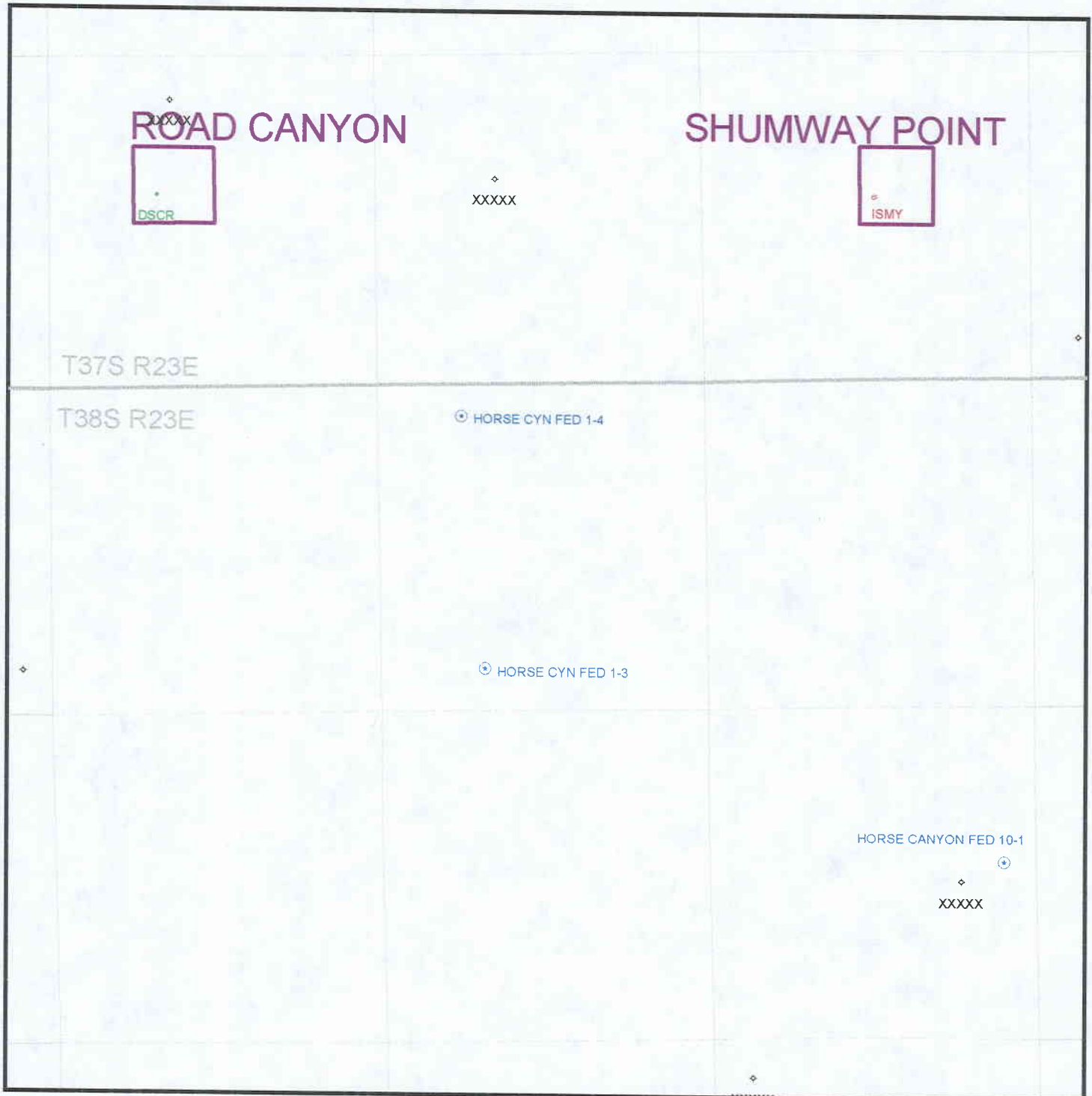
DIVISION OF OIL, GAS & MINING

OPERATOR: MILLER ENERGY (N6720)

FIELD: WILDCAT 1-3 (001) UNDESIGNATED 1-4 (002)

SEC. 4, TWP. 38S, RNG. 23E,

COUNTY: SAN JUAN UAC: R649-3-3 EXCEPTION SPACING



DATE PREPARED:
6-APR-1998



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

April 9, 1998

Miller Energy, Inc.
7900 Moorsbridge Road
Kalamazoo, Michigan 49002

Re: Horse Canyon Federal 1-4 Well, 484' FNL, 1366' FWL, NE NW,
Sec. 4, T. 38 S., R. 23 E., San Juan County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann. 40-6-1 et seq., Utah Administrative Code R649-3-1 et seq., and the attached Conditions of Approval, approval to drill the referenced well is granted.

Appropriate information has been submitted to DOGM by Miller Energy, Inc. and administrative approval of the requested exception location is hereby granted.

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-037-31799.

Sincerely,

for

John R. Baza
Associate Director

lwp

Enclosures

cc: San Juan County Assessor

Bureau of Land Management, Moab District Office

Operator: Miller Energy, Inc.
Well Name & Number: Horse Canyon Federal 1-4
API Number: 43-037-31799
Lease: UTU-72641
Location: NE NW Sec. 4 T. 38 S. R. 23 E.

Conditions of Approval

1. General

Compliance with the requirements of Utah Admin. R. 649-1 et seq., the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for Permit to Drill.

2. Notification Requirements

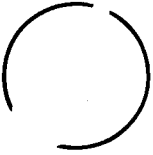
Notify the Division within 24 hours following spudding the well or commencing drilling operations. Contact Jim Thompson at (801)538-5336.

Notify the Division prior to commencing operations to plug and abandon the well. Contact Dan Jarvis at (801) 538-5338 or John R. Baza at (801)538-5334.

3. Reporting Requirements

All required reports, forms and submittals shall be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

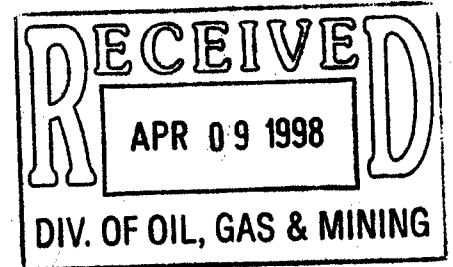
4. State approval of this well does not supercede the required federal approval which must be obtained prior to drilling.



FLYING J OIL & GAS INC.

333 WEST CENTER STREET • NORTH SALT LAKE, UTAH 84054
PHONE (801) 296-7700 • FAX (801) 296-7888

April 8, 1998



Utah State Division of Oil, Gas & Mining
594 West North Temple, Suite 121
Salt Lake City, Utah 84114-5801
Attn: Lisha Cordova

Re: Federal Oil and Gas Lease UTU-72641
Proposed Horse Canyon Federal 1-4 Well
NE/4NW/4 of Section 4, Township 38 South, Range 23 East, SLM
San Juan County, Utah

Dear Ms. Cordova:

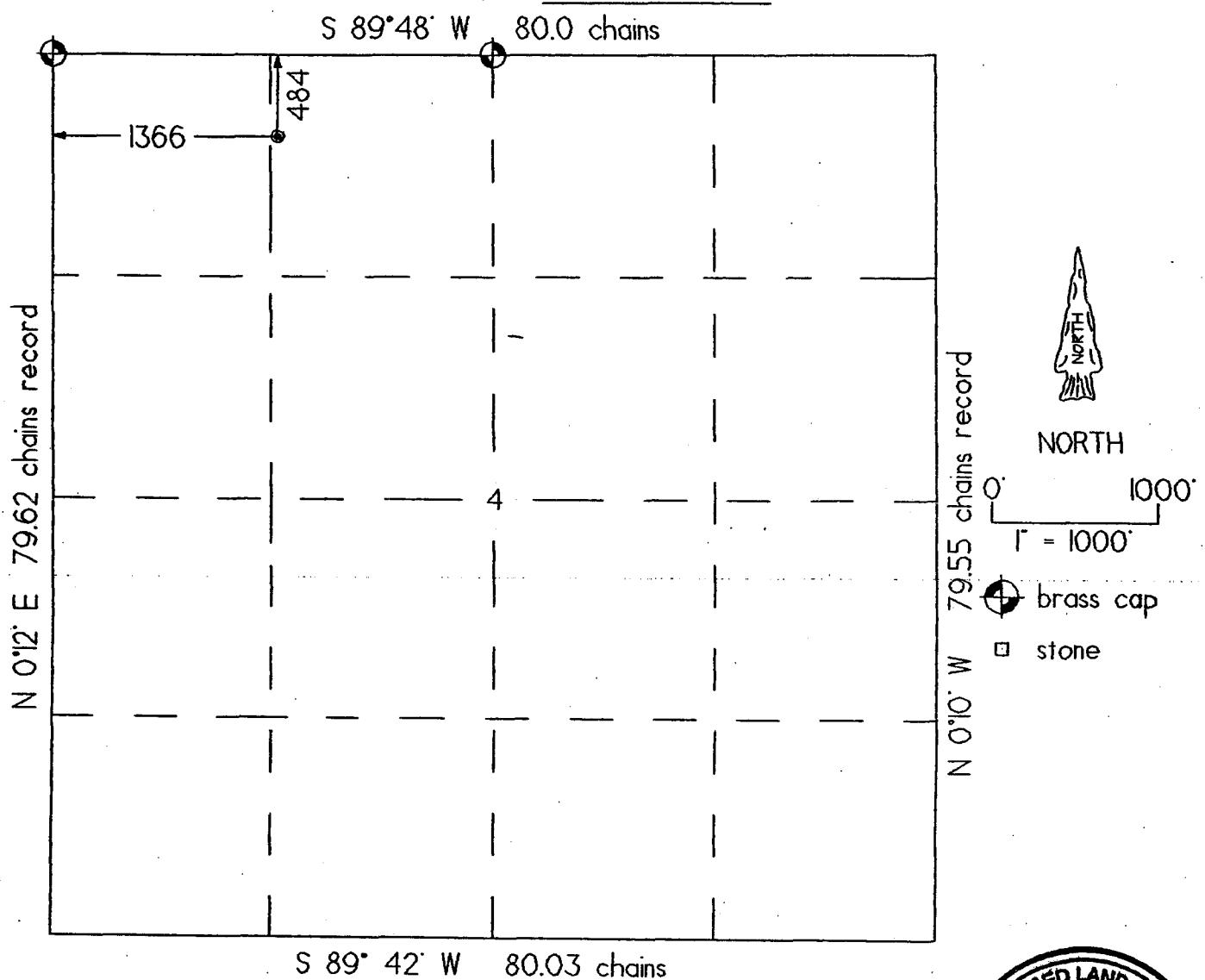
Flying J Oil and Gas Inc. and Miller Energy, Inc. entered into a Farmout Agreement dated March 15, 1998 covering a portion of the above-captioned Lease. It is our understanding that Miller Energy, Inc. is proposing to drill the above-captioned well 484 feet FNL and 1366 FWL of Section 4, T38S, R23E, San Juan County, Utah. As the leaseholder of record for said Lease, please be advised that Flying J Oil & Gas Inc. has no objections to the proposed exception to location for the above-captioned well. Should you have any questions regarding this matter, please call me on (801) 296-7820.

Sincerely,

Les White
Senior Landman

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

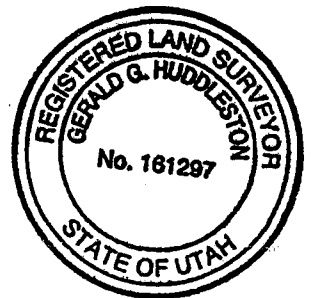
Well Location Plat



S 89° 42' W 80.03 chains

Well Location Description

MILLER ENERGY, INC.
Horse Canyon Federal I-4
484' FNL & 1366' FWL
Section 4. T.38 S.. R.23 E.. SLM
San Juan County. UT
5376' grd. el.
state plane : 316.860 N & 2.609.514 E (NAD 27)



27 February 1998

Gerald G. Huddleston
Gerald G. Huddleston, LS

The above is true and correct to my knowledge and belief.

HUDDLESTON LAND SURVEYING - BOX KK - CORTEZ, CO - (970) 565 -3330

MILLER ENERGY INC

Lease U-72641

NENW Section 04, T. 38 S., R. 23 E.

San Juan County, Utah

CONDITIONS OF APPROVAL

Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Be advised that Miller Energy Inc considered to be the operator of the above well and is responsible under the terms and conditions of the lease for the operations conducted on the leased lands.

Bond coverage for this well is provided by UT-1092 (Principal - Miller Energy Inc) via surety consent as provided for in 43 CFR § 3104.2.

This office will hold the aforementioned operator and bond liable until the provisions of 43 CFR § 3106.7-2 continuing responsibility are met.

This permit will be valid for a period of one year from the date of approval. After permit termination, a new application must be filed for approval.

All lease operations will be conducted in full compliance with applicable regulations (43 CFR § 3100), Onshore Oil and Gas Orders, lease terms, notices to lessees, and the approved plan of operations. The operator is fully responsible for the actions of his subcontractors. A copy of these conditions and the approved plan will be made available to field representatives to insure compliance.

A. DRILLING PROGRAM

1. The proposed 2M BOP system is adequate. Installation, testing and operation of the system shall be in conformance with Onshore Oil and Gas Order No. 2.
2. Any fluid bearing zones or lost circulation zones encountered while drilling will be isolated behind casing and cement.
3. The TOC for the production casing (5-1/2") must be from TD to a minimum of 500' above potential pay zones. Cement must be circulated to surface for the 13-3/8" and 9-5/8" casing.
4. If a gas meter run is constructed, it will be located on lease within 500 feet of the wellhead. The gas flowline will be buried from the wellhead to the meter and will be buried downstream of the meter until it leaves the pad. Meter runs will be housed and/or fenced. The gas meter shall be calibrated prior to first sales and shall be calibrated quarterly thereafter. All gas production and measurement shall comply with the provisions of 43 CFR § 3162.7-3, Onshore Oil and Gas Order No. 5, and American Gas Association (AGA) Report No. 3.
5. Any air drilling must be conducted in accordance with Onshore Order No. 2, Section E, Special Drilling Operations. Rig must have spark arresters, blooie line, float valve, automatic igniters, etc.

B. SURFACE USE PLAN

The following stipulations have been developed to mitigate adverse environmental impacts which may result from the action permitted by the accompanying decision. The action permitted and its anticipated impacts are fully described in the environmental assessment or categorical exclusion referenced above.

1. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the operator, or any person working on his behalf, on public or Federal land shall be immediately reported to the San Juan Resource Area Manager. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the San Juan Resource Area Manager. An evaluation of the discovery will be made by the San Juan Resource Area Manager to determine appropriate action to prevent the loss of significant cultural or scientific values. The operator will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the operator.
2. BLM will complete a raptor survey and clearance of the affected area surrounding the proposed drilling site prior to work initiation if the proposed well is drilled between February 1, and August 31. If the raptor survey locates an active raptor nesting territory which will be affected by this proposal, no work will be allowed until nestlings have fledged. This will apply to peregrine falcons found to be nesting within one mile, golden eagles and all other raptors found to be nesting within 0.5 mile of the proposed site. Discussion will be entered into by the San Juan Resource Area with the U.S. Fish & Wildlife Service to determine the feasibility of allowing drilling of said well closer (0.25 mile) ^{to} of the proposed action site if it can be proven that activity (noise and visual impacts) can take place without impacting the nesting birds and their offspring. The U.S. Fish & Wildlife Service will be fully consulted if peregrine falcon or golden eagle nesting becomes an issue and given updates on the nesting status of these birds.
3. Upon completion of the reserve pit excavation, an inspection will be made by the BLM to determine if adequate quantities of native bentonite are present in the pit to provide an effective seal. If it is determined that more bentonite is needed in the reserve pit, it would then be lined with approximately 24 tons of bentonite and worked into all surfaces of the reserve pit with a bulldozer.
4. The reserve pit shall remain free of hydrocarbons at all times. Any hydrocarbons entering the reserve pit will be removed promptly.
5. The netting material installed over the top and sides of the pit will be one inch or less mesh. The netting will be kept in good repair and maintained in a tight condition.

C. REQUIRED APPROVALS, REPORTS AND NOTIFICATIONS

Required verbal notifications are summarized in Table 1, enclosed.

Building Location- Contact the BLM Petroleum Engineering Technician at the Monticello BLM Field Office at least 48 hours prior to commencing construction of location.

Spud- The spud date will be reported to BLM 24 hours prior to spudding. Written notification in the form of a Sundry Notice (Form 3160-5) will be submitted to the Moab BLM Field Office within 24 hours after spudding, regardless of whether spud was made with a dry hole digger or big rig.

Daily Drilling Reports- Daily drilling reports shall detail the progress and status of the well and shall be submitted to the Moab BLM Field Office on a weekly basis.

Monthly Reports of Operations- In accordance with Onshore Oil and Gas Order No. 1, this well shall be reported on Minerals Management Service (MMS) Form 3160, "Monthly Report of Operations," starting the month in which operations commence and continuing each month until the well is physically plugged and abandoned. This report will be filed directly with MMS.

Sundry Notices- There will be no deviation from the proposed drilling and/or workover program without prior approval. "Sundry Notices and Reports on Wells" (Form 3160-5) will be filed for approval for all changes of plans and other operations in accordance with 43 CFR § 3162.3-2. Safe drilling and operating practices must be observed.

Drilling Suspensions- Operations authorized by this permit shall not be suspended for more than 30 days without prior approval of the Moab BLM Field Office. All conditions of this approval shall be applicable during any operations conducted with a replacement rig.

Undesirable Events- Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be immediately reported to the BLM in accordance with requirements of NTL-3A.

Cultural Resources- If cultural resources are discovered during construction, work that might disturb the resources is to stop, and the BLM is to be notified.

First Production- Should the well be successfully completed for production, the Moab BLM Field Office will be notified when the well is placed in producing status. Such notification may be made by phone, but must be followed by a sundry notice or letter not later than five (5) business days following the date on which the well is placed into production.

A first production conference will be scheduled as soon as the productivity of the well is apparent. This conference should be coordinated through the Monticello BLM Field Office. The Monticello BLM Field Office shall be notified prior to the first sale.

Well Completion Report- Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted to the Moab BLM Field Office not later than thirty (30) days after completion of the well or after completion of operations being performed, in accordance with 43 CFR § 3162.4-1. Two copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample description, and

all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. When requested, samples (cuttings and/or samples) will be submitted to the Moab BLM Field Office.

Venting/Flaring of Gas- Gas produced from this well may not be vented/flared beyond an initial, authorized test period of 30 days or 50 MMcf, whichever occurs first, without the prior, written approval of the BLM. Should gas be vented or flared without approval beyond the authorized test period, the well may be ordered shut-in until the gas can be captured or approval to continue the venting/flaring as uneconomic is granted. In such case, compensation to the lessor shall be required for that portion of the gas that is vented/flared without approval and which is determined to have been avoidably lost.

Produced Water- Produced waste water may be confined to an unlined pit for a period not to exceed 90 days after initial production. During the 90 day period, an application for approval of a permanent disposal method and location, along with the required water analysis, will be submitted to the Moab BLM Field Office for approval pursuant to Onshore Oil and Gas Order No. 7.

Off-Lease Measurement, Storage, Commingling- Prior approval must be obtained from the Moab BLM Field Office for off-lease measurement, off-lease storage and/or commingling (either down-hole or at the surface).

Plugging and Abandonment- If the well is completed as a dry hole, plugging instructions must be obtained from the Moab BLM Field Office prior to initiating plugging operations.

A "Subsequent Report of Abandonment" (Form 3160-5) shall be filed with the Moab BLM Field Office within thirty (30) days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration. Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR § 3162.6. Final abandonment will not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the BLM, or the appropriate surface managing agency.

TABLE 1. NOTIFICATIONS

Notify Jeff Brown of the Monticello BLM Field Office in Monticello, Utah, at (435) 587-1525, or at home (435) 587-1500 for the following:

2 days prior to commencement of dirt work, construction and reclamation;

1 day prior to spudding;

50 feet prior to reaching each casing setting depth;

3 hours prior to testing BOPE

If the person at the above number cannot be reached, notify the Moab BLM Field Office at (435) 259-6111. If unsuccessful, contact one of the people listed below.

Well abandonment operations require 24 hour advance notice and prior approval. In the case of newly drilled dry holes, verbal approval can be obtained by calling the Moab Field Office at (435) 259-6111. If approval is needed after work hours, you may contact the following:

Gary Torres, Petroleum Engineer	Office:	(435) 587-1524
	Home:	(435) 587-2705

Eric Jones, Petroleum Engineer	Office:	(435) 259-2117
	Home:	(435) 259-2214

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT---" for such proposals

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

5. Lease Designation and Serial No.
UTU 72641

6. If Indian, Allottee or Tribe Name
NA

7. If Unit or CA, Agreement Designation

8. Well Name and No.

Horse Canyon Federal 1-4

9. API Well No.

43-037-31799

10. Field and Pool, or Exploratory Area
Wildcat

11. County or Parish, State
San Juan County, Utah

SUBMIT IN TRIPLICATE

1. Type of Well

☒ Oil ☐ Gas ☐ Other

2. Name of Operator

Miller Energy Inc.

3. Address and Telephone No.

7900 Moorsbridge Road, Kalamazoo MI (616) 324-3390

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

484' FNL x 1366' FWL, Section 4, T38S, R23E

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

☐ Notice of Intent

☒ Subsequent Report

☐ Final Abandonment Notice

TYPE OF ACTION

☐ Abandonment

☐ Recompletion

☐ Plugging Back

☐ Casing Repair

☐ Altering Casing

☒ Other Weekly Operations

☐ Change of Plans

☐ New Construction

☐ Non-Routine Fracturing

☐ Water Shut-Off

☐ Conversion to Injection

☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depth for all markers and zones pertinent to this work.)*

5/6/98 MIRU Big A Rig 43. Spud 17 1/2" hole @ 6:15 pm 5/6/98. Drill to 171'.

5/7/98 Drill 17 1/2" hole to 260'. Ran 13 3/8" casing, land at 258'. Cement to surface with 325 sks Class 'b' + 2% CaCl2 + 1/4 #/sk celloflake. Circ 29 bbls to surface. WOC.

5/8/98 Drill out with 12 1/4" bit. Drilling 12 1/4" hole to 2034'.

5/9/98 Drilling 12 1/4" hole to 2325'.

5/10/98 Ran 9 5/8" casing and landed at 2320'. Cement with 600 sks 65/35 poz + 2% CaCl2 + 6#/sk gilsonite 1/4 #/sk celloflake, followed with 50 sks class 'b'. Pumped 150 sk class 'b' top job. Circ cmt to surface. WOC. NU BOPE and test.

5/11/98 Drill out with 7 7/8" bit. Drilling 7 7/8" hole to 3250'

14. I hereby certify that the foregoing is true and correct

Signed

Robert R. Griffie

Title Consulting Engineer

Date: 5/30/98

(This space for Federal or State office use)

Approved by

Title

Date

Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT---" for such proposals

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUBMIT IN TRIPLICATE

1. Type of Well

☒ Oil ☐ Gas ☐ Other

2. Name of Operator

Miller Energy Inc.

3. Address and Telephone No.

7900 Moorsbridge Road, Kalamazoo MI (616) 324-3390

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

484' FNL x 1366' FWL, Section 4, T38S, R23E

5. Lease Designation and Serial No.
UTU 72641

6. If Indian, Allottee or Tribe Name
NA

7. If Unit or CA, Agreement Designation

8. Well Name and No.

Horse Canyon Federal 1-4

9. API Well No.

43-037-31799

10. Field and Pool, or Exploratory Area
Wildcat

11. County or Parish, State
San Juan County, Utah

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

☐ Notice of Intent

☒ Subsequent Report

☐ Final Abandonment Notice

TYPE OF ACTION

☐ Abandonment

☐ Recompletion

☐ Plugging Back

☐ Casing Repair

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☒ Other Weekly Operations

☐ Change of Plans

☐ New Construction

☐ Non-Routine Fracturing

☐ Water Shut-Off

☐ Conversion to Injection

☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depth for all markers and zones pertinent to this work.)*

5/12/98 Drilling 7 7/8" hole to 4080'.

5/13/98 Drilling 7 7/8" hole to 4779'.

5/14/98 Drilling 7 7/8" hole to 5400'.

5/15/98 Drilling 7 7/8" hole to 5749'.

5/16/98 Drilling 7 7/8" hole to 5902'. Circ. PU DST tools for DST #1.

14. I hereby certify that the foregoing is true and correct

Signed

Robert R. Griffie

Title Consulting Engineer

Date: 5/30/98

(This space for Federal or State office use)

Approved by

Title

Date

Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

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Use "APPLICATION FOR PERMIT---" for such proposals

SUBMIT IN TRIPLICATE

1. Type of Well

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FORM APPROVED
Budget Bureau No. 1004-0135
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- ☐ Altering Casing
- ☒ Other Weekly Operations
- ☐ Change of Plans
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- ☐ Water Shut-Off
- ☐ Conversion to Injection
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(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depth for all markers and zones pertinent to this work.)*

5/17/98 DST #1 5817 - 5902'. Recovered 175' slightly gas cut mud. Drilling 7 7/8" hole to 6048'.
5/18/98 Drilling 7 7/8" hole to TD of 6149'. Log with Schlumberger.
5/19/98 Continue logging with Schlumberger Run #1 DLL/CNL/FDC, microlog (TD to 2500'), Run #2 Sonic (TD to 2500'). Set plug #1, 200 sks class 'b', from TD to 5700'.
5/20/98 Set plug #2, 100 sks class 'b' from 2907 - 2575', tag plug. Set plug #3, 100 sks class 'b' from 2369 - 2269'.
Set plug #4, 25 sks class 'b' from 50' to surface. Released rig at 1:00 pm 5/20/98.

14. I hereby certify that the foregoing is true and correct

Signed Robert R. Griffie Title Consulting Engineer

Date: 5/30/98

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any: _____

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*See Instruction on Reverse Side

REPORT NO.
1109996

PAGE NO. 1

TEST DATE:
17-MAY-1998

S T A R

Schlumberger Testing Data Report
Pressure Data Report

Schlumberger

COMPANY: MILLER ENERGY INC.

WELL: HORSE CANYON FEDERAL 1-4

TEST IDENTIFICATION

Test Type OH-DST-HPR
Test No. ONE
Formation UPPER ISMAY
Test Interval (ft) 5817 to 5902
Depth Reference KB

WELL LOCATION

Field WILDCAT
County SAN JAUN
State UTAH
Sec/Twn/Rng S4T38SR23E
Elevation (ft) 5391

HOLE CONDITIONS

Total Depth (MD/TVD) (ft)
Hole Size (in) 7.875
Casing/Liner I.D. (in)
Perf'd Interval/Net Pay (ft) .. 85/ 85
Shot Density/Diameter (in) ...

MUD PROPERTIES

Mud Type GEL CHEM
Mud Weight (lb/gal) 9.2
Mud Resistivity (ohm.m)
Filtrate Resistivity (ohm.m) .. 9.251 @ 68F
Filtrate Chlorides (ppm) 600

INITIAL TEST CONDITIONS

Initial Hydrostatic (psi) 2720.41
Gas Cushion Type
Surface Pressure (psi)
Liquid Cushion Type
Cushion Length (ft)

TEST STRING CONFIGURATION

Pipe Length (ft)/I.D. (in) ... 0 /
Collar Length (ft)/I.D. (in) .. 0 /
Packer Depths (ft)
Bottomhole Choke Size (in) ...
Gauge Depth (ft)/Type 5785/HPR 1390

NET PIPE RECOVERY

Volume	Fluid Type	Properties
175 ft	MUD	Rw2.893@68F 2000ppm
		Rw2.893@F

NET SAMPLE CHAMBER RECOVERY

Volume	Fluid Type	Properties
Pressure: 0.343		GOR: 0
		GLR: 0

INTERPRETATION RESULTS

Model of Behavior
Fluid Type Used for Analysis ..
Reservoir Pressure (psi)
Transmissibility (md.ft/cp) ..
Effective Permeability (md) ..
Skin Factor/Damage Ratio
Storativity Ratio, Omega
Interporos.Flow Coef..Lambda..
Distance to an Anomaly (ft) ..
Radius of Investigation (ft) ..
Potentiometric Surface (ft) ..

ROCK/FLUID/WELLBORE PROPERTIES

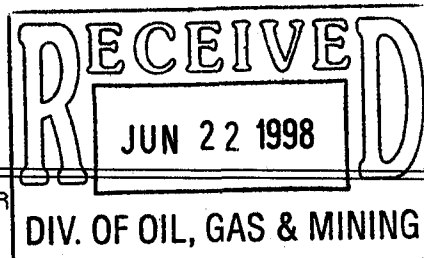
Oil Density (deg. API)
Basic Solids (%)
Gas Gravity
GOR (scf/STB)
Water Cut (%)
Viscosity (cp)
Total Compressibility (1/psi)..
Porosity (%) 8
Reservoir Temperature (F)
Form.Vol.Factor (bbl/STB)

PRODUCTION RATE DURING TEST: Data Report

COMMENTS:

This drill stem test was mechanically successful.

Thank you for using Schlumberger. For questions about this report please call the Testing district.



WELL TEST INTERPRETATION REPORT #:1109996		PAGE: 2.
CLIENT : MILLER ENERGY INC.		3-JUN-98
REGION :WESTERN	SEQUENCE OF EVENTS	FIELD:WILDCAT
DISTRICT:VERNAL		ZONE :UPPER ISMAY
BASE :DENVER		WELL :HORSE CNYN 1-4
ENGINEER:J.P.LEISER		LOCATION:S4T38SR23E

DATE	TIME (HR:MIN)	DESCRIPTION	ET (MINS)	BHP (PSIA)	WHP (PSIG)
17-MAY	07:37	HYDROSTATIC MUD	-2	2720	
	07:39	START FLOW NO BLOW	0	118	
	07:53	END FLOW & START SHUT-IN	14	58	
	08:24	END SHUT-IN	45	604	
	08:26	START FLOW NO BLOW	47	68	
	08:31	6" BLOW IN BUCKET 1/8" CHOKE	52		2.5oz
	08:40	6" BLOW	61		2.50Z
	09:00	5" BLOW	81		2.0oz
	09:10	5" BLOW	91		2.0oz
	09:23	5" BLOW	104		2.0oz
	09:23	END FLOW & START SHUT-IN	104	72	2.0oz
	11:23	END SHUT-IN	224	1391	
	11:26	HYDROSTATIC MUD	227	2716	

WELL TEST INTERPRETATION REPORT #:1109996		PAGE: 12.
CLIENT : MILLER ENERGY INC.		3-JUN-98
REGION :WESTERN DISTRICT:VERNAL BASE :DENVER ENGINEER:J.P.LEISER	DISTRIBUTION OF REPORTS	FIELD:WILDCAT ZONE :UPPER ISMAY WELL :HORSE CNYN 1-4 LOCATION:S4T38SR23E

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(5 copies)

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P.O. BOX611
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Any interpretations or recommendations are opinions and necessarily based on inferences and empirical factors and assumptions, which are not infallible. Accordingly, Schlumberger (Flopetrol Johnston) cannot and does not warrant the accuracy of correctness of any interpretation or measurement. Under no circumstances should any interpretation or measurement be relied upon as the sole basis for any drilling, completion, well treatment or production decision or any procedure involving risk to the safety of any drilling venture, drilling rig or its crew or any other individual. The Customer has full responsibility for all drilling, completion, well treatment, and production procedure, and all other activities relating to the drilling or production operation.

BOTTOMHOLE PRESSURE LOG

FIELD REPORT NO. 1109996

COMPANY : MILLER ENERGY CORP.

INSTRUMENT NO. HPR-C1390

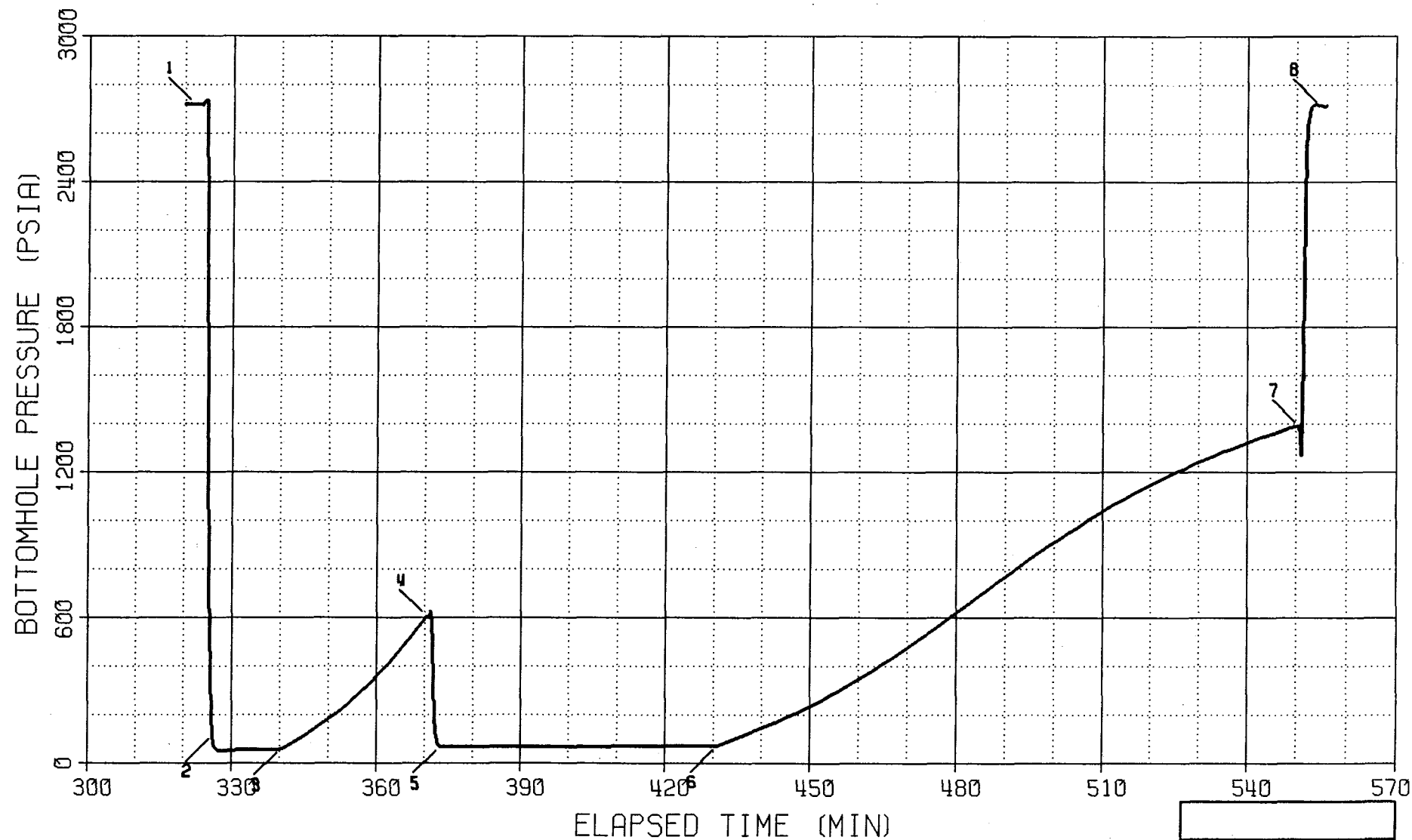
WELL : HORSE CAYNON FEDERAL 1-4

DEPTH : 5785 FT

CAPACITY : 20000 PSI

Electronic Pressure Data

PORT OPENING : INSIDE



Schlumberger

BOTTOMHOLE TEMPERATURE LOG

FIELD REPORT NO. 1109996

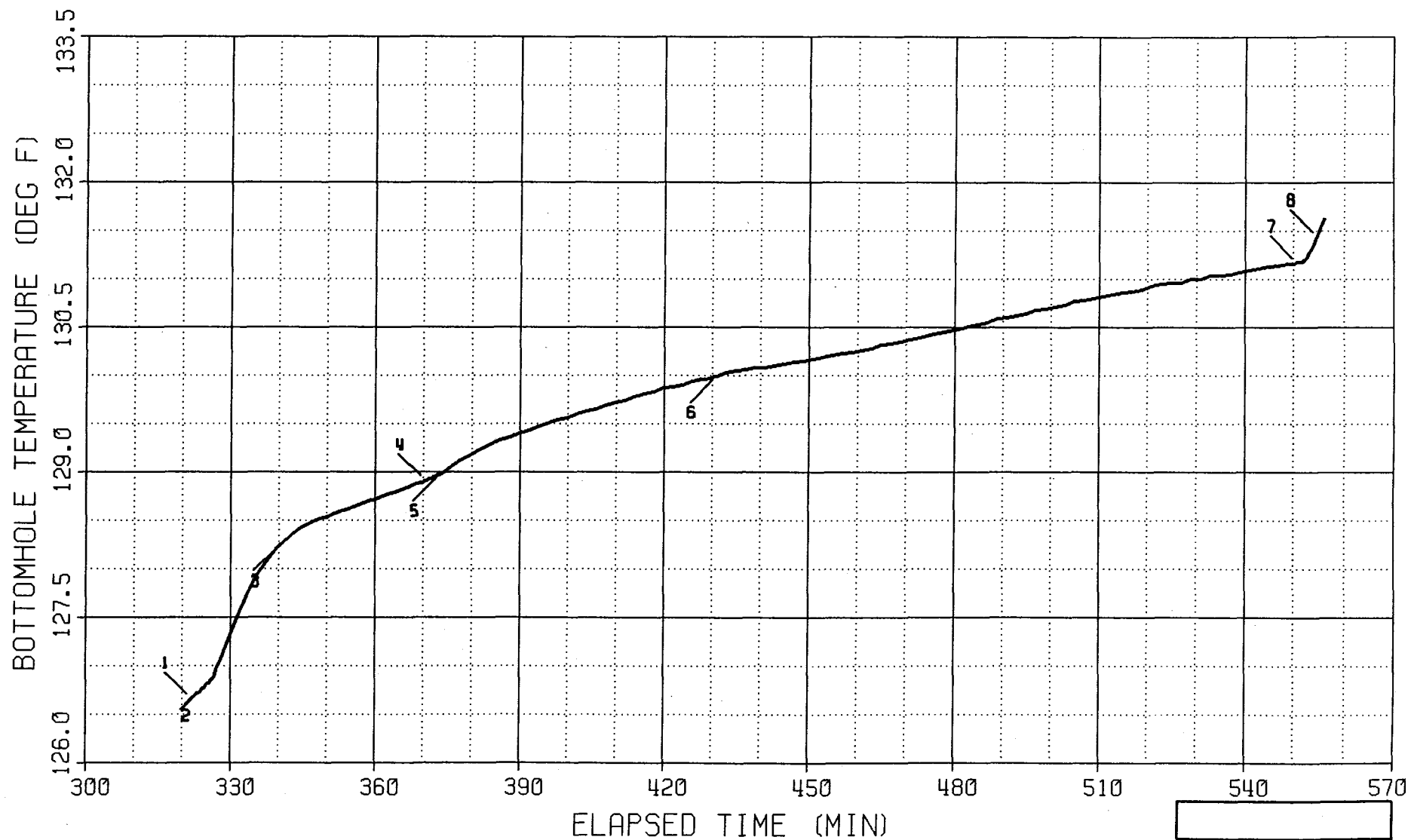
COMPANY : MILLER ENERGY CORP.

INSTRUMENT NO. HPR-C1390

WELL : HORSE CAYNON FEDERAL 1-4

DEPTH : 5785 FT

Electronic Temperature Data



Schlumberger

LOG LOG PLOT

COMPANY : MILLER ENERGY CORP.

WELL : HORSE CAYNON FEDERAL 1-4

FIELD REPORT NO. 1109996

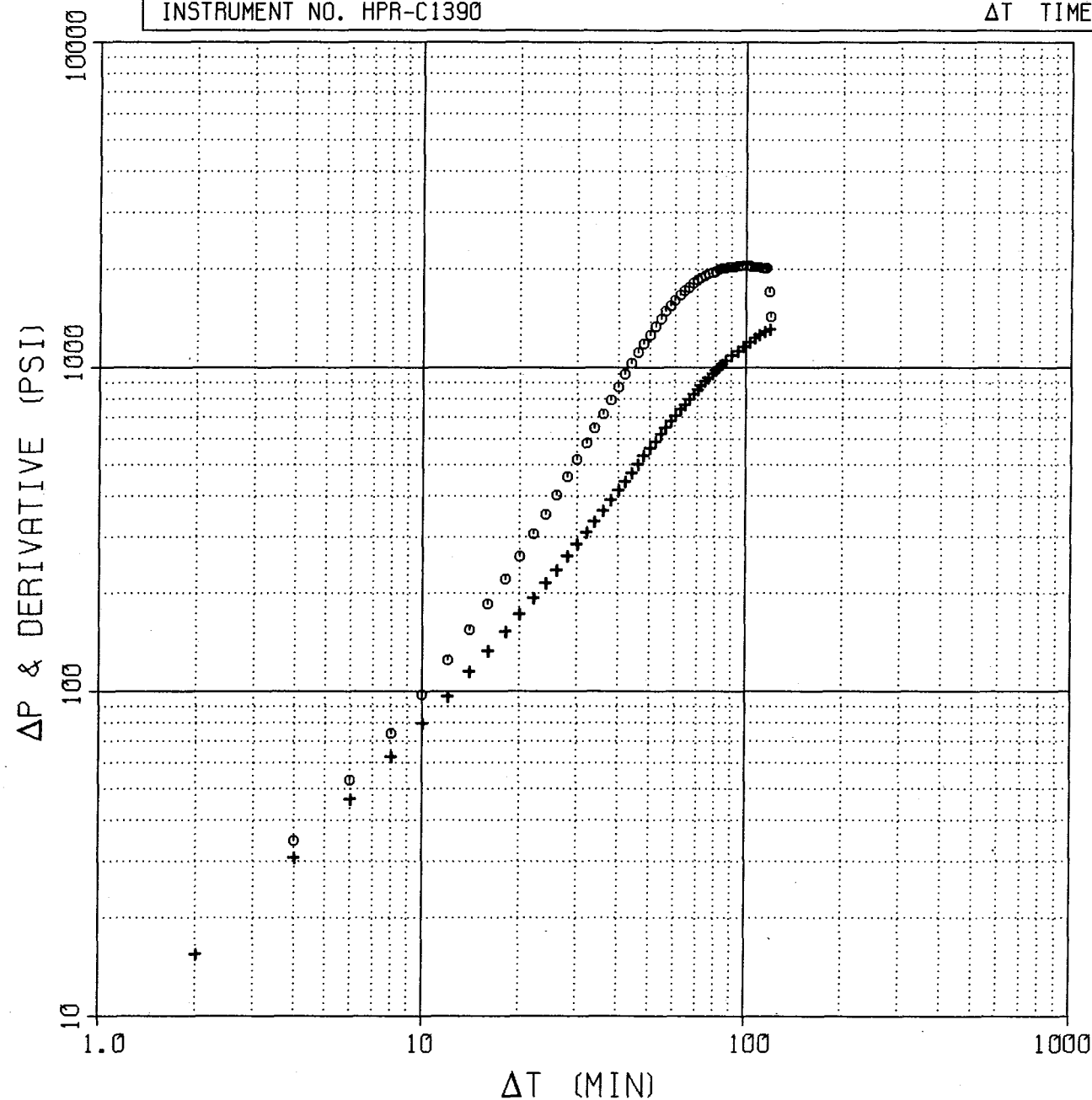
INSTRUMENT NO. HPR-C1390

SHUTIN #2 : PRODUCING TIME (T_p) : 71.7 MIN

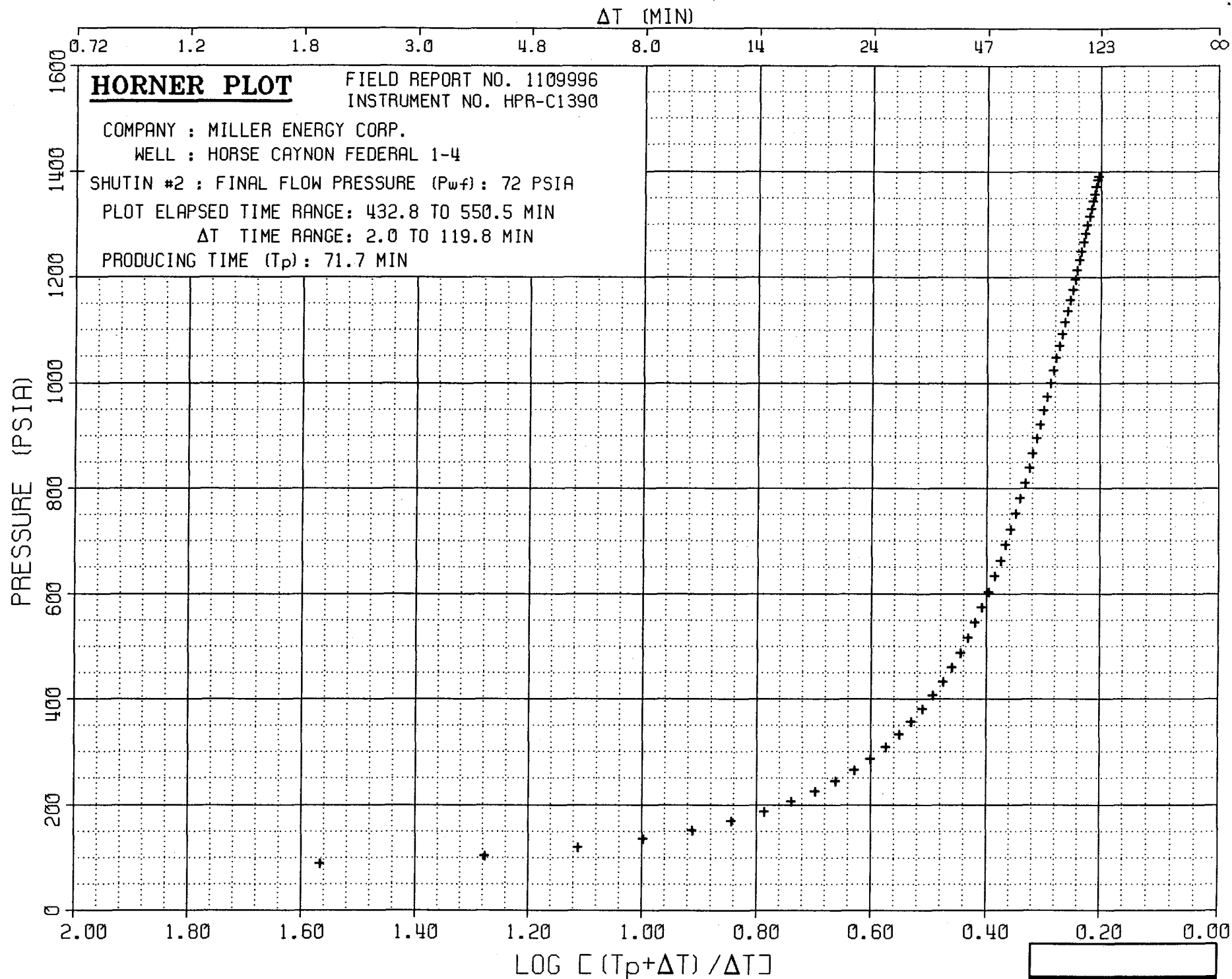
FINAL FLOW PRESSURE (P_{wf}) : 72 PSIA

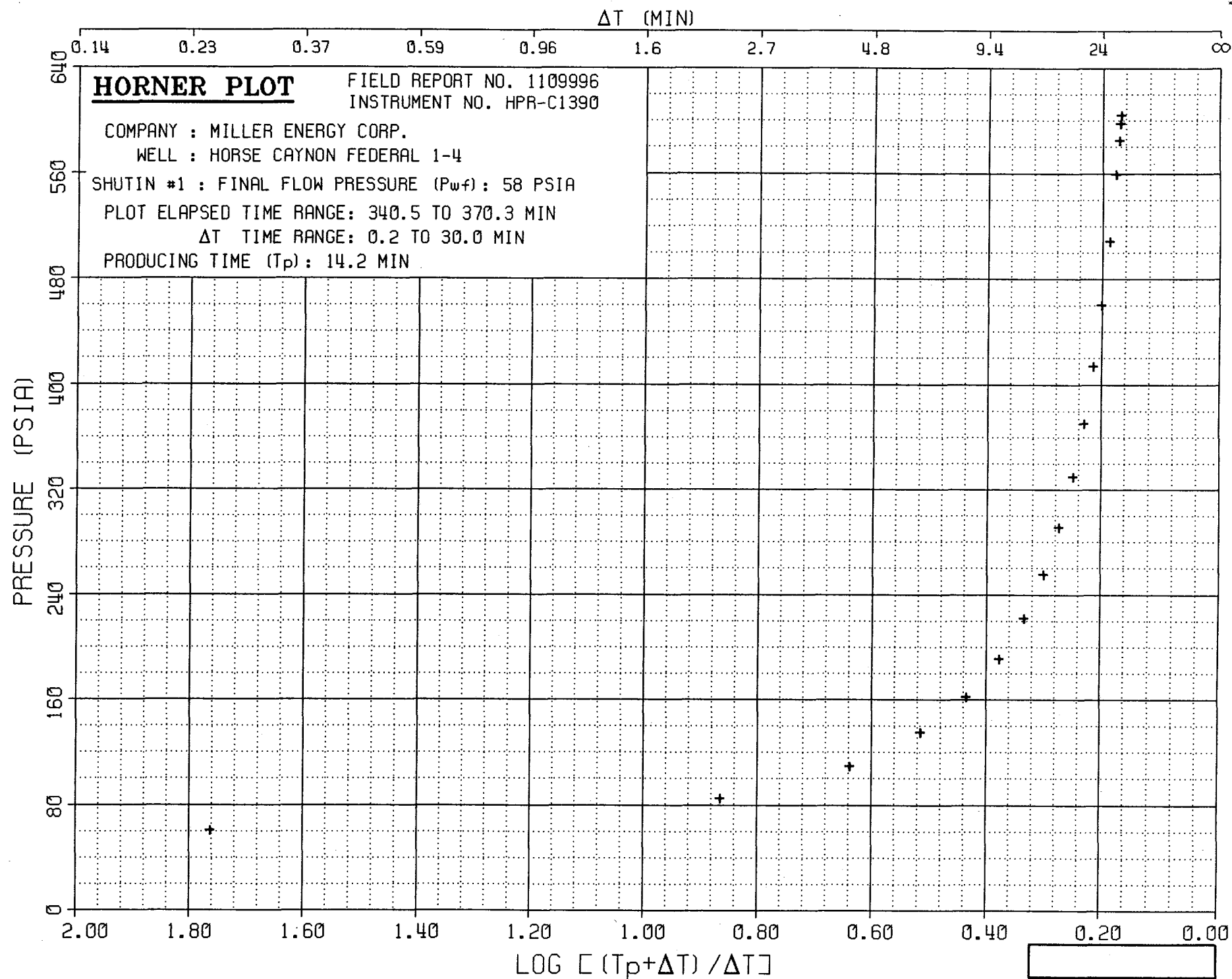
PLOT ELAPSED TIME RANGE: 432.8 TO 550.5 MIN

ΔT TIME RANGE: 2.0 TO 119.8 MIN



Schlumberger





 ** WELL TEST DATA PRINTOUT **

COMPANY: MILLER ENERGY CORP.
 WELL: HORSE CAYNON FEDERAL 1-4

FIELD REPORT NO. 1109996
 INSTRUMENT NO. HPR-C1390

RECORDER CAPACITY: 20000 PSI PORT OPENING: INSIDE DEPTH: 5785 FT

LABEL POINT INFORMATION

#	TIME OF DAY HH:MM:SS	DATE DD-MMM	EXPLANATION	ELAPSED TIME, MIN	BOT HOLE PRESSURE PSIA	BOT HOLE TEMP. DEG F
1	7:34:47	17-MAY	HYDROSTATIC MUD	321.78	2720.41	126.66
2	7:39:02	17-MAY	START FLOW	326.03	117.87	126.86
3	7:53:17	17-MAY	END FLOW & START SHUT-IN	340.28	58.18	128.25
4	8:23:17	17-MAY	END SHUT-IN	370.28	604.02	128.91
5	8:26:17	17-MAY	START FLOW	373.28	67.86	128.97
6	9:23:47	17-MAY	END FLOW & START SHUT-IN	430.78	72.26	129.99
7	11:23:32	17-MAY	END SHUT-IN	550.53	1390.99	131.18
8	11:27:32	17-MAY	HYDROSTATIC MUD	554.53	2715.89	131.45

SUMMARY OF FLOW PERIODS

PERIOD	START ELAPSED TIME, MIN	END ELAPSED TIME, MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA	INITIAL PRESSURE PSIA
1	326.03	340.28	14.25	117.87	58.18	117.87
2	373.28	430.78	57.50	67.86	72.26	67.86

SUMMARY OF SHUTIN PERIODS

PERIOD	START ELAPSED TIME, MIN	END ELAPSED TIME, MIN	DURATION MIN	START PRESSURE PSIA	END PRESSURE PSIA	FINAL FLOW PRESSURE PSIA	PRODUCING TIME, MIN
1	340.28	370.28	30.00	58.18	604.02	58.18	14.25
2	430.78	550.53	119.75	72.26	1390.99	72.26	71.75

TEST PHASE: FLOW PERIOD # 1

TIME OF DAY	DATE	ELAPSED	DELTA	BOT HOLE TEMP.	BOT HOLE PRESSURE
HH:MM:SS	DD-MMM	TIME, MIN	TIME, MIN	DEG F	PSIA
7:39:02	17-MAY	326.03	0.00	126.86	117.87
7:53:17	17-MAY	340.28	14.25	128.25	58.18

TEST PHASE: SHUTIN PERIOD # 1

FINAL FLOW PRESSURE = 58.18 PSIA
PRODUCING TIME = 14.25 MIN

TIME OF DAY	DATE	ELAPSED	DELTA	BOT HOLE TEMP.	BOT HOLE PRESSURE	DELTA P	LOG HORNER
HH:MM:SS	DD-MMM	TIME, MIN	TIME, MIN	DEG F	PSIA	PSI	TIME
7:53:17	17-MAY	340.28	0.00	128.25	58.18	0.00	
7:55:32	17-MAY	342.53	2.25	128.35	84.66	26.48	0.8653
7:57:32	17-MAY	344.53	4.25	128.43	109.17	50.99	0.6388
7:59:32	17-MAY	346.53	6.25	128.48	134.88	76.70	0.5159
8:01:32	17-MAY	348.53	8.25	128.52	162.07	103.89	0.4357
8:03:32	17-MAY	350.53	10.25	128.55	191.01	132.83	0.3784
8:05:32	17-MAY	352.53	12.25	128.59	221.98	163.80	0.3351
8:07:32	17-MAY	354.53	14.25	128.62	255.33	197.15	0.3010
8:09:32	17-MAY	356.53	16.25	128.66	291.07	232.89	0.2734
8:11:32	17-MAY	358.53	18.25	128.70	329.38	271.20	0.2506
8:13:32	17-MAY	360.53	20.25	128.73	370.29	312.11	0.2314
8:15:32	17-MAY	362.53	22.25	128.77	413.77	355.59	0.2150
8:17:32	17-MAY	364.53	24.25	128.80	459.89	401.71	0.2007
8:19:32	17-MAY	366.53	26.25	128.84	508.40	450.22	0.1883
8:21:32	17-MAY	368.53	28.25	128.88	558.80	500.62	0.1774
8:23:17	17-MAY	370.28	30.00	128.91	604.02	545.84	0.1688

TEST PHASE: FLOW PERIOD # 2

TIME OF DAY	DATE	ELAPSED	DELTA	BOT HOLE TEMP.	BOT HOLE PRESSURE
HH:MM:SS	DD-MMM	TIME, MIN	TIME, MIN	DEG F	PSIA
8:26:17	17-MAY	373.28	0.00	128.97	67.86
8:42:47	17-MAY	389.78	16.50	129.40	67.44
8:58:47	17-MAY	405.78	32.50	129.65	69.33
9:14:47	17-MAY	421.78	48.50	129.88	71.72
9:23:47	17-MAY	430.78	57.50	129.99	72.26

TEST PHASE: SHUTIN PERIOD # 2

FINAL FLOW PRESSURE = 72.26 PSIA
PRODUCING TIME = 71.75 MIN

TIME OF DAY	DATE	ELAPSED	DELTA	BOT HOLE TEMP.	BOT HOLE PRESSURE	DELTA P	LOG HORNER
HH:MM:SS	DD-MMM	TIME, MIN	TIME, MIN	DEG F	PSIA	PSI	TIME
9:23:47	17-MAY	430.78	0.00	129.99	72.26	0.00	
9:25:47	17-MAY	432.78	2.00	130.03	87.71	15.45	1.5667
9:27:47	17-MAY	434.78	4.00	130.05	102.99	30.73	1.2773
9:29:47	17-MAY	436.78	6.00	130.06	118.60	46.34	1.1125
9:31:47	17-MAY	438.78	8.00	130.08	134.71	62.45	0.9986

TEST PHASE: SHUTIN PERIOD # 2

FINAL FLOW PRESSURE = 72.26 PSIA

PRODUCING TIME = 71.75 MIN

TIME OF DAY HH:MM:SS	DATE DD-MMM	ELAPSED TIME, MIN	DELTA TIME, MIN	BOT HOLE TEMP. DEG F	BOT HOLE PRESSURE PSIA	DELTA P PSI	LOG HORNER TIME
9:33:47	17-MAY	440.78	10.00	130.08	151.34	79.08	0.9125
9:35:47	17-MAY	442.78	12.00	130.10	168.60	96.34	0.8438
9:37:47	17-MAY	444.78	14.00	130.12	186.51	114.25	0.7871
9:39:47	17-MAY	446.78	16.00	130.14	205.12	132.86	0.7391
9:41:47	17-MAY	448.78	18.00	130.15	224.36	152.10	0.6978
9:43:47	17-MAY	450.78	20.00	130.17	244.33	172.07	0.6616
9:45:47	17-MAY	452.78	22.00	130.19	265.03	192.77	0.6295
9:47:47	17-MAY	454.78	24.00	130.21	286.57	214.31	0.6009
9:49:47	17-MAY	456.78	26.00	130.23	308.90	236.64	0.5751
9:51:47	17-MAY	458.78	28.00	130.24	332.04	259.78	0.5518
9:53:47	17-MAY	460.78	30.00	130.26	355.95	283.69	0.5304
9:59:47	17-MAY	466.78	36.00	130.33	432.39	360.13	0.4761
10:05:47	17-MAY	472.78	42.00	130.39	515.19	442.93	0.4327
10:11:47	17-MAY	478.78	48.00	130.46	602.63	530.37	0.3970
10:17:47	17-MAY	484.78	54.00	130.53	691.67	619.41	0.3671
10:23:47	17-MAY	490.78	60.00	130.60	780.61	708.35	0.3416
10:29:47	17-MAY	496.78	66.00	130.68	866.54	794.28	0.3195
10:35:47	17-MAY	502.78	72.00	130.73	947.81	875.55	0.3003
10:41:47	17-MAY	508.78	78.00	130.80	1023.30	951.04	0.2833
10:47:47	17-MAY	514.78	84.00	130.86	1092.65	1020.39	0.2681
10:53:47	17-MAY	520.78	90.00	130.93	1155.98	1083.72	0.2546
10:59:47	17-MAY	526.78	96.00	130.96	1213.55	1141.29	0.2424
11:05:47	17-MAY	532.78	102.00	131.04	1265.83	1193.57	0.2313
11:11:47	17-MAY	538.78	108.00	131.07	1313.32	1241.06	0.2212
11:17:47	17-MAY	544.78	114.00	131.13	1356.43	1284.17	0.2120
11:22:47	17-MAY	549.78	119.00	131.16	1389.39	1317.13	0.2049
11:23:32	17-MAY	550.53	119.75	131.18	1390.99	1318.73	0.2039

FORM APPROVED
OMB NO. 1004-0137
Expires: February 28, 1995

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

37. SUMMARY OF POROUS ZONES: (Show all important zones of porosity and content thereof; cored intervals; and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries):

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
Morrison	surface	542	
Bluff Ss	542	700	
Wanakah	700	825	
Entrada Ss	825	1010	
Navajo Ss	1010	1530	
Kayenta Fm	1530	1668	
Wingate Ss	1668	1975	
Chinle Fm	1975	2592	
Shinarump Cgl	2592	2745	
Moenkopi Fm	2745	2832	
Cutler Grp	2832	2970	
De Chelly Ss	2970	3062	
Organ Rock Sh	3062	3527	
Cedar Mesa Ss	3527	4304	
Halgaito Sh	4304	4802	
Honaker Trail Fm	4802	5775	
Upper Ismay	5775	5882	
Hovenweep Shale	5882	5904	
Lower Ismay	5904	5958	
Gothic Shale	5958	5988	
Desert Creek	5988	6064	
Lower Desert Creek	6064	6090	
Chimney Rock Sh	6090	6115	
Akah	6115		
TD	6149		

38. GEOLOGICAL MARKERS			38. GEOLOGICAL MARKERS		
NAME	TOP		NAME	TOP	
	MEAS. DEPTH	TRUE VERT. DEPTH		MEAS. DEPTH	TRUE VERT. DEPTH